

**BOARD OF TRUSTEES
UNIVERSITY OF THE DISTRICT OF COLUMBIA
UDC RESOLUTION NO. 2019 - 43**

**SUBJECT: Executive Appointment of Dr. Ludwig C. Nitsche as Associate Dean,
School of Engineering and Applied Sciences**

WHEREAS, pursuant to 8B DCMR §210.1, the President is authorized to make executive appointments to designated positions in the Educational Service, in accordance with the provisions of 8B DCMR §§210 through 212; and

WHEREAS, pursuant to 8B DCMR §212.1, all Deans of academic colleges shall be filled by executive appointment; and

WHEREAS, pursuant to 8B DCMR §210.2, each person selected by the President for an executive appointment shall be qualified on a description of their position or their roles and responsibilities and shall be approved by the Executive Committee; and

WHEREAS, pursuant to 8B DCMR §212.3, the President shall provide for a formal search and selection process to fill academic dean positions; and

WHEREAS, Dr. Ludwig C. Nitsche has participated in a formal search and selection process pursuant to 8B DCMR §212.3; and

WHEREAS, Dr. Nitsche has been recommended to serve as the Associate Dean for the School of Engineering and Applied Sciences, based upon his knowledge, past accomplishments and experience; and

WHEREAS, Dr. Nitsche will be eligible to receive tenure as a full professor in Mechanical Engineering pending the documentation of his tenure received at his previous institution and a recommendation for tenure approval by the faculty and Dean of the School of Engineering and Applied Sciences and approval by the Board; and

WHEREAS, after review of his credentials, it has been determined that he is well-qualified for such position and that the recommended salary adequately reflects the job duties and experience;

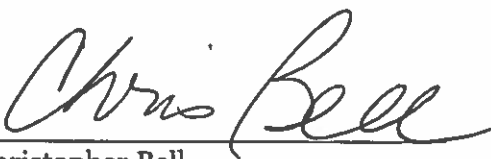
NOW, THEREFORE, BE IT RESOLVED that the Board of Trustees of the University of the District of Columbia approves the appointment of Dr. Ludwig C. Nitsche as the Associate Dean for the School of Engineering and Applied Sciences effective August 16, 2019, consistent with the terms and conditions of his appointment letter.

Submitted by the Executive Committee

September 10, 2019

Ratified by the Board of Trustees:

September 10, 2019



Christopher Bell
Chairperson of the Board

To: The Board of Trustees

From: Managing Director of Finance *David A. Franklin*

Date: September 4, 2019

Subject: Executive Appointment of Dr. Ludwig Nitsche - Associate Dean - College of Engineering and Applied Science (SEAS)

Conclusion

It is projected that there are sufficient unrestricted funds in the budget allocation of the University of the District of Columbia's FY2019 and FY2020 budget to cover the cost of the salary and benefits associated with the appointment of Dr. Ludwig Nitsche to the position of Associate Dean for Academic Affairs in the College of Engineering and Applied Sciences (SEAS) at the University of the District of Columbia.

Background

The proposed resolution is to appoint Dr. Ludwig Nitsche to the position of Associate Dean for Academic Affairs in the College of Engineering and Applied Sciences (SEAS) at the University of the District of Columbia, effective August 16, 2019. This is an executive appointment in accordance with the District of Columbia Municipal Regulations, Title 8B DCMR, Chapter 2. It should be noted that pursuant to the DCMR, this appointment is required to be an "at will" appointment, serving at the pleasure of the President and terminable at any time without appeal or right to compensation.

Financial Impact

The salary for this appointment will be Level 3, Step 10 of the non-union administrative salary schedule, paying \$114,941 with related benefits of \$32,183 and a relocation stipend of up to \$2,000 subject to District and University guidelines. The employee will continue to be fully eligible for cost of living increases in accordance with applicable University policy. He will also continue to be eligible for and may participate in University of the District of Columbia health insurance, life insurance, retirement, and disability programs in the same manner and under the same conditions as regular administrative employees hired on or

about the date of his initial appointment. The University will contribute the equivalent of seven percent (7%) of the employee's salary to his Teacher Insurance Annuity Association (TIAA) retirement. The employee leave accrual rates are as follows: annual leave accrual of seven (7) hours per pay period and sick leave of four (4) hours per pay period.

This request has been approved based upon the information provided. There are no anticipated risks at this time.



Office of the Dean
June 25, 2019

Justification for Offer- Associate Dean, School of Engineering and Applied Sciences

Office of Talent Management, UDC

Ref: Associate Dean, SEAS

I am enclosing the rationale for the job offer of Associate Dean in the School of Engineering and Applied Science (SEAS) to Dr. Ludwig Carlos Nitsche.

The search committee and interview panel for this important position of Associate Dean was led by Dr. Lily Liang, Professor of Computer Science. The committee involved members from all departments in SEAS and current Associate Dean Dr. Adebayo. In addition, we also had Dr. Malva Reid, Associate Dean of SBPA as a search committee member. The committee members have been involved in reviewing all received candidate applications for finding the best possible candidates that meet the needs of SEAS. Several candidates were interviewed, which involved web interview and Skype type of conversation. Two candidates, Dr. Ludwig Carlos Nitsche and Dr Seyed Roosta were invited to the campus. The candidate, Dr. Ludwig Carlos Nitsche has the adequate background needed to be Associate Dean of SEAS.

Dr. Nitsche holds a Ph.D from MIT and an impressive background academically as well as administratively. He can teach courses such as heat transfer and fluid dynamics in the area of Mechanical Engineering. He can also teach, conduct research, and perform service in SEAS. He is qualified to hold the rank of Professor of Mechanical Engineering. SEAS is in dire need of filling this Associate Dean position in view of our growing enrollment and the presence of 11 academic programs in engineering and computer science areas.

Recommended Salary: \$116,000

Starting date: August 16, 2019.

All the necessary documents such as selection certificate, interview process, question asked and evaluation are submitted by Chair Dr. Lily Liang, Chair of search committee.

Sincerely,

Devdas Shetty, Ph.D., P.E.

Dean

School of Engineering and Applied Science

University of the District of Columbia; 4200 Connecticut Ave. NW;

Washington, DC 20008

Letter of Interest

March 21, 2019

Search Committee, Associate Dean
School of Engineering and Applied Sciences (SEAS)
University of the District of Columbia
4200 Connecticut Avenue NW
Washington, DC 20008
Phone: 202.274.5000

To the Search Committee:

Greetings from the University of Illinois at Chicago. My name is Ludwig Carlos Nitsche. These lines are to express my interest in being considered for the position of Associate Dean in the School of Engineering and Applied Sciences (SEAS) at the University of the District of Columbia. For three and a half years thus far (in a five-year term) I serve as the Associate Dean for Undergraduate Affairs in the College of Engineering. I have also been a faculty member in the Chemical Engineering department for nearly 28 years. My previous administrative experience includes 14 months as Interim Department Head and 9 years as departmental Director of Undergraduate Studies (DUGS).

The accompanying documents present my qualifications: (1) Administrative Profile, which describes my administrative experience in terms of management of personnel and students and current responsibilities, (2) Curriculum Vitae. (3) Research Themes, which organizes my list of publications among main focus areas of research. (4) References.

Leadership Style

To the Associate Dean position at the University of the District of Columbia I would bring (1) enthusiasm and energy, (2) a dedicated ethic of service, (3) multiscale leadership ability spanning from strategic vision to meticulous attention to detail, (4) a win-win approach in all of my professional interactions, and (5) above all, passion for facilitating student learning and expanding the diversity of STEM education and institutions. I am a very collaborative person, work harmoniously with others, and am proud of having coauthored research publications with six among my departmental colleagues in Chemical Engineering (which – when the department was smaller – meant all full-time ChE faculty).

Experience in Administration, Student Success and Institutional Diversity

Leadership in program assessment and continuous improvement. As DUGS in the Chemical Engineering department, I had responsibility for coordinating assessment and preparations for the 2008 and 2014 ABET accreditation cycles. For both of these ABET site visits I programmed a complete web-based presentation and archival system in HTML/CSS. The ABET Final Statements for 2008 and 2014 contained no deficiencies, concerns, weaknesses or observations. The 2008 statement concluded that, *“The assessment plan is mature and well documented. The director of undergraduate studies is to be commended for his efforts in organizing the assessment data and serving as the department ‘champion’ to steer the assessment process.”* The 2014 statement mentioned that *“The program personnel who are providing leadership for the assessment of the undergraduate program have developed comprehensive documentation and processes. The organization of the materials both in the self-study report and on-site materials was very professional and detailed.”* Now in my capacity of Associate Dean, I have scaled up this approach to

a unified, college-wide digital system for archiving and presenting curriculum portfolios and assessment data for all Engineering departments. For this purpose, I recruited and hired a Teaching Associate staff member to develop and maintain a faculty-usable, SharePoint-based, FERPA-compliant web system. I also work extensively with the departmental DUGS's and the Director of Assessment on planning and implementation of assessment methodologies and multi-level analysis of data. Finally, I have liaised with the campus-wide Office of Assessment on graduate program assessment, worked directly with all six departmental Directors of Graduate Study and helped coordinate the IBHE (Illinois Board of Higher Education) accreditation of graduate programs in Engineering.

Diversity mission in higher education. As co-chair of the college-level Diversity Committee from 2008-2014, I led formulation, administration and analysis of a climate assessment survey, liaised with the university Diversity Strategic Thinking and Planning Committee, and worked with faculty, staff and students to complete a Diversity Strategic Plan for the college and its constituent departments. From 2005-2014 I served as the Chemical Engineering departmental Facilitator for the university-level WISE (Women in Science and Engineering) Committee. These efforts included working with intra- and inter-college colleagues to (1) research literature in social sciences on unconscious bias and best practices in hiring, (2) positively influence university faculty-affairs policies in tangible ways, and (3) develop and present search committee workshops with material and approach that university administration later adopted beyond the STEM fields. I have worked with the Director of Minority Affairs in the college to reformulate outreach, recruitment and scholarship programs toward improved yield. I regularly participate in outreach events at feeder community colleges. As PI of a \$600K NSF S-STEM scholarship grant in the Chemical Engineering department, I planned and managed recruitment, selection, mentoring and tracking for 59 scholarship students. These efforts increased the representation of women among our undergraduate student body. Currently I am co-PI of an ongoing, \$1M, college-level S-STEM scholarship grant that provides holistic academic and mentoring support for academically talented, low income students. I also serve on the Faculty Advisory Board for the campus-wide PAP STEM Initiative: Presidential Award Program of scholarships and holistic mentoring and research experience for students within underrepresented groups.

Leadership in curricular and programmatic innovations. As chair of the Educational Policy Committee (EPC), I work with the Directors of Undergraduate Studies (DUGS) in all Engineering departments and liaise with the Dean, Department Heads and higher administration to bring new and modified courses as well as revisions to degree programs to fruition within university rules, procedures and standards. I am currently developing a suite of undergraduate leadership and peer-mentoring courses to enhance student professional development and boost retention and persistence. In my previous capacity as departmental DUGS in Chemical Engineering, I developed two new computational courses (ChE 205 – Computational Methods in Chemical Engineering; ChE 433 – Aspen Plus Process Simulation) as well as a Professional Development Seminar (ChE 499) for graduating seniors. I also spearheaded the undergraduate program changes to make ChE 205 and ChE 499 bachelor's degree requirements, and taught these courses for several years. These developments represented continuous-improvement contributions to the curriculum, based upon feedback from alumni and our Industrial Advisory Board and also faculty discussions. I have devoted much effort to developing relationships with the departments of Sociology and History on inter-college STEM intersections with their curricula. This has come to fruition with STEM-based modules in two courses in Sociology last year and a History course this spring semester. My dedication to student learning and efforts toward effective and improved teaching have led to receiving the UIC Award for Excellence in Teaching, CETL (Council on Excellence in Teaching and Learning) Teaching Recognition Program Award, the college-level Harold Simon Excellence in Teaching Award and two further teaching awards.

Hands-on student learning. I served on the planning committee for the UIC Engineering student MakerSpace, which brought this facility from construction nearing completion to full functionality in November 2016. Planning activities included formulating policies for students and safety, chairing the search committee for the Associate Director of the MakerSpace, and assignment of office and work space to the student professional organizations. The MakerSpace currently operates under my administrative and budget oversight, and its Associate Director reports to me. As a faculty member working in collaboration with MakerSpace personnel, I drafted the official course outlines for the MakerSpace certification courses (ENGR 111/112 – Engineering Practicum in Additive/Subtractive Manufacturing). As chair of the Educational Policy Committee (EPC) I facilitated the administrative approval and launching of these courses, which have proven popular with our undergraduates.

Capstone design experience. I recruited and hired a Teaching Associate staff member to rejuvenate organization and management of the annual Engineering EXPO. Her efforts have been widely recognized and include development of a SharePoint-based web management system for students, faculty and administration. I am currently also working with the Senior Design professors in five Engineering departments to merge Senior Design in Engineering consistently with Honors College Senior Capstone policies and introduce interdisciplinary team collaboration as part of the student experience.

Experience in faculty affairs. In my 14-month stint as Interim Head of the Chemical Engineering department, I had administrative responsibility for hiring 2 tenure-track assistant professors and 3 non-tenure-track faculty members. I also prepared the papers for one (successful) tenure case. Other efforts included managing course assignments for department faculty, modernizing the Unit Operations teaching laboratory, and securing facilities support for faculty with laboratory research programs.

Study abroad, international initiatives and distance education. I have served as a member of the UIC Internationalization Task Force and continue serving as a member of the Academic Quality Assurance Committee (AQAC), which oversees and reports to the main UIC Global steering committee on program curriculum, admissions/progression criteria, student conduct, and academic support for international students. These efforts also include (1) presenting engineering lectures to visiting international student groups, (2) introducing a hands-on MakerSpace course experience for incoming international students to boost their motivation, and (3) representing the UIC Engineering college on a UIC Global delegation during a 10-day recruiting trip to Vietnam and Burma in fall 2017. Liaising with the Director of Online Education and Distance Education, I coordinated with the EPC to convert the course catalog of UIC's Master of Engineering Online program from departmental courses to the new, dedicated MENG rubric. Finally, I am the college-level point of contact for students seeking study abroad opportunities. In this capacity I regularly (1) meet individually with undergraduates to plan course work at foreign universities; and (2) liaise with the Study Abroad office and academic departments on approval of foreign transfer credits.

Intra- and inter-institutional relations and collaborations. Aside from the campus committees and offices mentioned above, I have collaborated with colleagues in the departments of Biological Sciences, Educational Psychology, Sociology, Chemistry, Chemical Engineering, Mechanical and Industrial Engineering, and Electrical and Computer Engineering on multiple educational and institutional grant proposals. I maintain relationships with administration and faculty at the top feeder community colleges for UIC, including providing assistance to the Office of Academic and Enrollment Services and the Office of the Registrar in negotiating Transfer Admission Guarantee agreements and also liaising on inter-institutional grant proposals.

Data-driven decisions and strategic planning. For monthly reporting to the Administrative Council (consisting of the Dean, Department Heads, Associate Deans, Directors), I developed perspicuous new metrics to track recruiting, inform admissions criteria, and thereby enable strategic

enrollment and capacity planning. In this effort I carried out extensive VBA programming to enable a standardized data-mining procedure that is now routinely implemented by the Admissions Director.

Supervision of personnel and management of budgets. Personnel under my direct supervision include Directors and Associate Directors of (1) Admissions and Records, (2) Minority Affairs and MERRP (Minority Recruitment and Retention Program), (3) WIEP (Women in Engineering Programs), (4) MakerSpace, (5) Educational Assessment, and (6) Student Organizations. Their direct reports include 3 Assistant Directors (academic advisors), 2 administrative assistants, 8 graduate student employees and 9 undergraduate student employees. I also manage a Teaching Associate staff member and two Administrative Assistants. In addition to oversight of hiring, professional development, performance evaluation, and policies, I also make salary and promotion recommendations to the Dean for all staff in the Undergraduate Office. Factoring in management of the MERRP and WIEP programs, student recruiting, student organizations and the MakerSpace, my direct budget oversight amounts to approximately \$870,000 annually. This entails detailed collaboration with all Directors and Associate Directors and recommendations discussed with the Dean for his final approval.

I hope that your Search Committee will see fit to invite me for an interview, so that I can learn more about the University of the District of Columbia and expand in person on the information contained above and in the attached documentation. I trust that – in these opening stages of your consideration – my application and all supporting documents will be kept strictly confidential, and I am most grateful for this circumspection. With many thanks for your consideration of my application I remain

Respectfully yours,

Ludwig C. Nitsche

Ludwig Carlos Nitsche, Ph.D.
Associate Dean for Undergraduate Affairs, College of Engineering
Associate Professor of Chemical Engineering
University of Illinois at Chicago
810 South Clinton Street
Chicago, IL 60607
Phone: (312) 342-5998
Email: lcn@uic.edu

Administrative Profile

Administrative Profile (CONFIDENTIAL)

Ludwig Carlos Nitsche, Ph.D.
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 Associate Professor of Chemical Engineering
 University of Illinois at Chicago
 810 South Clinton Street
 Chicago, IL 60607
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1. Relevant portion of organization chart in the College of Engineering at UIC.

LCN reports to the Dean of the College of Engineering.

Management of Directors and Staff in the Undergraduate Office. Reports to LCN:

Formal title	Subsidiary title or other responsibility	Number of staff members reporting to this position
Director of Engineering Admissions and Records		3 Assistant Directors (academic advisors)
Director of Minority Affairs	Director of the Minority Engineering Recruitment and Retention Program (MERRP)	1 administrative assistant 6 graduate student employees
Associate Director, Women in Engineering Programs (WIEP)		
Associate Director of the MakerSpace		1 administrative assistant 2 graduate student employees 9 undergraduate student employees
Administrative Assistant	Front Office Manager	2 student employees
Assistant to the Associate Dean for Undergraduate Affairs		
Director of Educational Assessment	Part-time administrative appointment of a faculty member	
Director of Student Organizations	Part-time administrative appointment of a faculty member	
Teaching Associate	IT manager for ABET accreditation, and Instructor of Engineering Orientation course	

2. Current responsibilities within the Engineering Undergraduate Office

Oversight and coordination of student recruiting, admissions, and retention. Includes (1) assisting the Dean in strategic planning of enrollment targets and admissions policies; (2) formulating and managing metrics and data analytics; (3) reporting to the Administrative Council (which consists of the Dean, Department Heads, Associate Deans, and Directors); (4) working with the MERRP and WIEP Directors and oversight of their budgets; (5) preparing for college-wide student recruiting events; (6) meeting individually with prospective students and their parents/guardians; (7) working with college- and university-level Human Resources departments to define a new position of Associate Director of Recruitment and Retention to manage high school outreach, student ambassadors program and student peer mentoring.

Coordination of curriculum for all departments and also online master's degree programs. Includes (1) *ex officio* membership on the Educational Policy Committee (EPC) and liaising with Directors of Undergraduate Studies (DUGS's) in all six Engineering departments; (2) development and management of digital information system for archiving and managing EPC meetings; (3) liaising with the Office of Programs and Assessment on Senate approval of new/revised courses and degree programs; (4) summary reporting to the Dean and Department Heads.

Oversight of student academic advising and orientation, transfer credit articulation, and advanced placement credit. Includes liaising with Engineering departments and the Office of Programs and Academic Assessment.

Oversight of academic discipline. Includes (1) tracking of student performance, probation and dismissal; (2) individual meetings with students, including referral to academic support and other resources; (3) liaising with the Engineering departments.

Oversight of transfer credit articulation and advanced placement credit.

Management of assessment and ABET accreditation in the College of Engineering. Includes (1) strategic planning; (2) formulation, development and management of digital system for collection of assessment data, archiving, evaluation, and presentation; (3) liaising with the Heads and DUGS's of the Engineering departments; (4) Liaising with the campus-wide Office of Programs and Assessment.

Management and assignment of scholarships for continuing students, liaising with the Office of Advancement; and in consultation with the Awards and Scholarships Committee (in capacity as *ex officio* member and chair).

Management of faculty teaching awards, liaising with the Dean and Department Heads and the Awards and Scholarships Committee (in capacity as *ex officio* member and chair).

Resolution of student grievances reaching the Dean's Office from the departments, in capacity as *ad hoc* designee of the Dean.

Oversight of the MakerSpace facility and its Associate Director on (1) budgeting and equipment; (2) policies for student use and safety protocols; (3) assignment of office space to student organizations.

Membership on the Faculty Advisory Board (FAB) of the campus-wide PAP STEM Initiative (Presidential Award Program of scholarships and holistic mentoring experience for students within underrepresented groups). Includes (1) FAB oversight of strategic planning, admissions, academic support, and undergraduate research experiences; (2) individual mentoring of PAP-STEM students.

Outreach to community colleges and feeder schools. Includes (1) working directly with community college faculty and liaising with the Office of Academic and Enrollment Services and the Office of the Registrar to assist in the negotiation of Transfer Admission Guarantee agreements with Chicagoland community colleges; (2) visits and presentations at community colleges; (3) liaising with community college leadership on inter-institutional grant proposals.

Oversight of spring Commencement ceremonies and role of master of ceremonies.

Liaising with the UIC Global office on international student recruitment and retention. Includes (1) Membership on the UIC Internationalization Task Force; (2) membership on the Academic Quality Assurance (AQA) subcommittee which oversees and reports to the main steering committee on program curriculum, admissions/progression criteria, student conduct, academic support and faculty mentoring; (3) presenting engineering lectures to visiting international student groups; (4) representing the UIC Engineering college on a UIC Global delegation during a 10-day recruiting trip to Vietnam and Myanmar in fall 2017.

Oversight of student organizations and professional societies. Includes (1) working with the Director of Student Organizations on policies, events, and an online student organization management system; (2) soliciting and evaluating funding requests; (3) assigning funding support in consultation with the Dean, and liaising with the Department Head associated with each student organization.

Budget planning and oversight, reporting to the Dean and liaising with the Associate Dean for Administration, for (1) Minority Engineering Recruitment and Retention Program (MERRP); (2) Women in Engineering Programs (WIEP); (3) MakerSpace facility; (4) Student organizations.

Liaising with the Office of the Dean of Students on student conduct. Includes (1) serving on hearing panels and conducting referral reviews for student academic dishonesty cases; and (2) formulating orientation materials and college policies regarding academic honesty.

International education of Engineering students. Includes (1) meeting individually with undergraduates to plan course work at foreign universities; and (2) liaising with the Study Abroad office and academic departments on approval of foreign transfer credits.

Curriculum Vitae

Curriculum Vitae (CONFIDENTIAL)

Ludwig Carlos Nitsche, Ph.D.
Associate Dean for Undergraduate Affairs, College of Engineering
Associate Professor of Chemical Engineering
University of Illinois at Chicago
810 South Clinton Street
Chicago, IL 60607
Phone: (312) 342-5998
Email: lcn@uic.edu

Education.

NATO Postdoctoral Fellowship (1989-1990), Department of Applied Mathematics and Theoretical Physics (DAMTP), University of Cambridge, UK. Advisor: Professor E. J. Hinch.

Ph.D. in Chemical Engineering (1989), Massachusetts Institute of Technology. Advisor: Professor Howard Brenner. Thesis title: "Multiphase Flow Through Spatially Periodic Models of Porous Media."

B.Ch.E. (With High Distinction, 1984) and B.Math (With High Distinction, 1984), University of Minnesota. Baccalaureate grade-point average: 3.98 / 4.00.

Languages.

English: mother tongue
Spanish: functional to fluent
German: fluent

Academic and administrative* appointments since the PhD.

8/2015 – Current	*Associate Dean for Undergraduate Affairs, College of Engineering, UIC
6/2014 – 8/2015	*Interim Head, Department of Chemical Engineering, UIC
8/2005 – 5/2014	*Director of Undergraduate Studies, Department of Chemical Engineering, UIC
9/1996 – Current	Associate Professor of Chemical Engineering, UIC
9/1991 – 8/1996	Assistant Professor of Chemical Engineering, UIC
1/1990 – 8/1991	Visiting Assistant Professor of Chemical Engineering, UIC
9/1989 – 12/1990	NSF-NATO Postdoctoral Fellow, DAMTP, University of Cambridge, UK
6/1989 – 8/1989	Postdoctoral Associate, Department of Chemical Engineering, MIT

Honors and awards.

- (9) UIC Award for Excellence in Teaching, 2014.
- (8) UIC College of Engineering Harold A. Simon Award for Excellence in Teaching, 2012.
- (7) UIC College of Engineering 2008 Faculty Teaching Award.
- (6) UIC CETL 2007 Teaching Recognition Program Award.
- (5) UIC College of Engineering 2006 Faculty Teaching Award.
- (4) USIA Fulbright Senior Scholar Program, Award #9498 (Austria, Research, 10/1999 – 1/2000).
- (3) National Science Foundation Young Investigator (NYI) Award, 1994-1999.
- (2) NSF-NATO Postdoctoral Fellowship, awarded February 1989.
- (1) NSF Graduate Fellowship Award, 1984-1987.

Courses taught at UIC. Asterisk (*) indicates that LCN was originator of new course.

ChE 201	Sophomore	Introduction to Thermodynamics
ChE 205*	Sophomore	Computational Methods in Chemical Engineering
ChE 301	Junior	Chemical Engineering Thermodynamics
ChE 311	Junior	Transport Phenomena I (Fluid mechanics)
ChE 312	Junior	Transport Phenomena II (Heat and Mass Transfer)
ChE 341	Senior	Chemical Process Control
ChE 397	Senior	Senior Design II
ChE 410	Graduate	Transport Phenomena
ChE 413*	Graduate	Introduction to Flow in Porous media
ChE 431	Graduate	Numerical Methods in Chemical Engineering
ChE 433*	Graduate	Process Simulation With Aspen Plus
ChE 445	Graduate	Mathematical Methods in Chemical Engineering
ChE 512*	Graduate	Microhydrodynamics, Diffusion and Membrane Transport

Articles in preparation.

- [34] R. G. Henriquez Rivera and L. C. Nitsche, "Flying into the fog: A variational method for Fourier extension of the third kind and implications for interpolation with radial basis functions." Manuscript in preparation for submission to *J. Comput. Phys.*
- [33] L. C. Nitsche, G. B. Kasting and J. M. Nitsche, "Physics-based algorithms for the diffusion velocity method in multiphase systems: Adaptive range finding, boundary corrections and particle redistribution." Manuscript in preparation for submission to *J. Comput. Phys.*

Publications in refereed journals. Asterisk (*) indicates papers co-authored with faculty colleagues in the UIC Chemical Engineering department.

- [32] I. L. Molnar, E. Pensini, Md A. Asad, C. A. Mitchell, L. C. Nitsche, L. J. Pyrak-Nolte and M. M. Krol (2019), Colloid Transport in Porous Media: A Review of Classical Mechanics and Emerging Topics, *Transp. Porous Media*, In Press.

- [31] L. C. Nitsche, J. M. Nitsche and G. B. Kasting (2019), Microscopic Models of Drug/Chemical Diffusion Through the Skin Barrier: Effects of Diffusional Anisotropy of the Intercellular Lipid, *J. Pharm. Sci.*, In press. DOI: 10.1016/j.xphs.2018.11.014
- [30*] P. Leon Plata, Y. Liu and L. C. Nitsche (2018), Interaction of Multiple Drops and Formation of Toroidal-Spiral Particles, *Phys. Rev. Fluids*, **3**, 093601. DOI: 10.1103/PhysRevFluids.3.093601
- [29*] A. Aljehani, S. A. K. Razackc, L. Nitsche, S. Al-Hallaj (2018), Design and optimization of a hybrid air conditioning system with thermal energy storage using phase change composite, *Energy Conversion & Management*, **169**, 404–418. DOI: 10.1016/j.enconman.2018.05.040
- [28] L. C. Nitsche and B.A. Bernal (2018), Stokes flow singularity at a corner joining solid and porous walls at arbitrary angle, *J. Eng. Math.*, **108**, 1–23. DOI: 10.1007/s10665-017-9901-2
- [27*] V. Sharma, M. Köllmer, M. Szymusiak, L. C. Nitsche, R. A. Gemeinhart and Y. Liu (2014), Toroidal Spiral Particles for Codelivery of Anti-VEGFR-2 Antibody and Irinotecan: A Potential Implant to Hinder Recurrence of Glioblastoma Multiforme, *Biomacromolecules*, **15**, 756–762. DOI: 10.1021/bm401550r
- [26] L. C. Nitsche and P. Parthasarathi (2012), Stokes flow singularity at the junction between impermeable and porous walls. *J. Fluid Mech.*, **713**, 183–215. DOI:10.1017/jfm.2012.454
- [25*] M. Szymusiak M, V. Sharma V, L. C. Nitsche and Y. Liu (2012), Interaction of sedimenting drops in miscible solution – formation of heterogeneous toroidal-spiral particles. *Soft Matter*, **8**, 7556–7559 (2012). DOI: 10.1039/c2sm25928a
- [24*] V. Sharma, M. Szymusiak, H. Shen, L. C. Nitsche, and Y. Liu (2012), Formation of polymeric Toroidal-spiral particles, *Langmuir*, **28**, 729–735. DOI: 10.1021/la203338v
- [23*] Y. Lei, J. Jelic, L. C. Nitsche, R. Meyer and J. Miller (2011), Effect of Particle Size and Adsorbates on the L3, L2 and L1 X-ray Absorption Near Edge Structure of Supported Pt Nanoparticles, *Topics in Catalysis*, **54**, 334–348. DOI 10.1007/s11244-011-9662-5
- [22] L. C. Nitsche and P. Parthasarathi (2010), Cubically Regularized Stokeslets for Fast Particle Simulations of Low-Reynolds-Number Drop Flows, *Chem. Eng. Commun.*, **197**, 18–38. DOI: 10.1080/00986440903070809
- [21*] N. S. Parkar, B. S. Akpa, L. C. Nitsche, L. E. Wedgewood, M. S. Sverdllov, O. Chaga and R. D. Minshall (2009), Vesicle formation and Endocytosis: Function, machinery, Mechanisms, and Modeling (Forum Review Article), *Antioxidants & Redox Signaling*, **11**, 1301–1312. DOI: 10.1089/ars.2008.2397
- [20] L. C. Nitsche (2006), Accurate asymptotic formulas for the transient PDF of a FENE dumbbell in suddenly started uniaxial extension followed by relaxation. *J. Non-Newtonian Fluid Mech.*, **135**, 109–116. DOI: 10.1016/j.jnnfm.2006.01.008

- [19*] L. C. Nitsche, W. Zhang and L. E. Wedgewood (2006), Asymptotic basis of the L-closure for finitely extensible dumbbells in suddenly started uniaxial extension. *J. Non-Newtonian Fluid Mech.*, **133**, 14–27. DOI:10.1016/j.jnnfm.2005.10.004
- [18] L. C. Nitsche, A. Nguyen and G. Evans (2004), Globally cohesive drops without interfacial tension. *Chem. Phys. Lett.*, **397**, 417–421. DOI:10.1016/j.cplett.2004.09.006
- [17*] S. Murad and L. C. Nitsche (2004), The effect of thickness, pore size and structure of a nanomembrane on the flux and selectivity in reverse osmosis separations: a molecular dynamics study. *Chem. Phys. Lett.*, **397**, 211–215. DOI:10.1016/j.cplett.2004.08.106
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- [13] G. Machu, W. Meile, L. C. Nitsche and U. Schaflinger (2001), Coalescence, torus formation and break-up of sedimenting drops: experiments and computer simulations. *J. Fluid Mech.*, **447**, 299–336. DOI: 10.1017/S0022112001005882
- [12] L. C. Nitsche and E. J. Hinch (1997), Shear-induced lateral migration of Brownian rigid rods in parabolic channel flow. *J. Fluid Mech.*, **332**, 1–21. DOI: 10.1017/S0022112096003369
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- [9] L. C. Nitsche (1996), Cross-stream migration of bead-spring polymers in nonrectilinear pore flows. *AIChE Journal*, **42**, 613–622. DOI: 10.1002/aic.690420303
- [8] L. C. Nitsche (1995), A singular perturbation analysis of antipolarization dialysis at high aspect ratio. *Ind. Eng. Chem. Research*, **34**, 3590–3605. DOI: 10.1021/ie00037a049
- [7] L. C. Nitsche and S. Zhuge (1995), Hydrodynamics and selectivity of antipolarization dialysis. *Chem. Eng. Sci.*, **50**, 2731–2746. DOI: 10.1016/0009-2509(95)00041-3

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- [4] E. J. Hinch and L. C. Nitsche (1993), Nonlinear drift interactions between fluctuating colloidal particles: oscillatory and stochastic motions. *J. Fluid Mech.*, **256**, 343–401. DOI: 10.1017/S0022112093002812
- [3] L. C. Nitsche and H. Brenner (1990), Hydrodynamics of particulate motion in sinusoidal pores via a singularity method. *AIChE Journal*, **36**, 1403–1419. DOI: 10.1002/aic.690360913
- [2] L. C. Nitsche and H. Brenner (1989), Eulerian kinematics of flow through spatially periodic models of porous media. *Arch. Rational Mech. Anal.*, **107**, 225–292. DOI: 10.1007/BF01789610
- [1] L. C. Nitsche, J. M. Nitsche and H. Brenner (1988), Existence, uniqueness and regularity of a time-periodic probability density distribution arising in a sedimentation-diffusion problem. *SIAM J. Math. Anal.*, **19**, 153–166. DOI: 10.1137/0519012

Other technical publications.

L. C. Nitsche, Appendix: Refined model with sphere-sphere interactions and leading-order wall effects (pp. 358–361) in: R. Zenit and M. L. Hunt, The impulsive motion of a liquid resulting from a particle collision, *J. Fluid Mech.* **375**, 345–361 (1998).

L. C. Nitsche, Book Review (Microhydrodynamics: Principles and Selected Applications. By Sangtae Kim and Seppo J. Karrila, Butterworth-Heinemann, Boston, 1991, 507+xxiii pp.), *AIChE Journal*, **40**, 739–743 (1994).

L. C. Nitsche, A new lift for centrifugal impellers? *Chem. Eng. Progress*, **87**, 73–79 (1991).

Patent issued.

L. C. Nitsche and Y. Liu, Self-assembled toroidal-spiral particles and manufacture and uses thereof, *US Patent 8,852,645*, Issued October 7, 2014.

Grants from external funding agencies.

(17) L. C. Nitsche, Co-PI: "NSF INCLUDES: A Community Centered Approach to Improving STEM Pathways for Underrepresented Students." NSF-SES 1649298. Period: 10/01/2016 – 9/30/2018. Budget: \$299,972. (Joint with PI: K. Lawless and co-PIs: J. Abiade, A. Alfonso and D. Wink.)

(16) L. C. Nitsche, Co-PI, "An Integrated Program for Recruitment, Retention, and Graduation of Academically Talented Low Income Engineering Students." NSF-DUE 1644182. Period: 07/01/2017 – 06-30/2022. Budget: \$999,096. (Joint grant with PI: H. Darabi and other Co-PIs: R. Revelo Alonso, J. Abiade and P. C. Nelson.)

(15) L. C. Nitsche, Co-PI, "Toroidal-spiral particles (TSPs) for co-delivery of multiple compounds of different sizes." NSF-DMR 1404884. Period: 08/01/2014 – 07/31/2017. Budget: \$390,000. (Joint grant with PI: Y. Liu and other Co-PI: R. Gemainhart.)

(14) L. C. Nitsche, PI, "Midwest Thermodynamics and Statistical Mechanics (MTSM) Conference." NSF-CBET . Period: 05/01/2014 – 04/30/2015. Budget: \$10,000. (Co-PI: S. Murad.)

(13) L. C. Nitsche, PI, "Collaborative Research: GOALI: Multiscale Theory and Computer Simulation of Skin Absorption Phenomena." NSF-CBET 1335869. Period: September 1, 2013 - August 31, 2016. Budget: \$101,229. (Partner investigators and institutions: J. M. Nitsche, State University of New York at Buffalo; G. B. Kasting, University of Cincinnati.)

(12) L. C. Nitsche, PI, "Scholarship Program for Women in Chemical Engineering." NSF-DUE 1060198. Period: September 1, 2012 – August 31, 2017. Budget: \$599,766. (Joint grant with Co-PIs: S. Murad, L. E. Wedgewood, P. C. Nelson and G. A. Smith.)

(11) L. C. Nitsche, Co-PI, "EAGER: Preliminary Study on Novel self-assembled Toroidal-Spiral MicroParticles (TSMPs) for sustained release of therapeutic proteins and peptides: theory and experiments." NSF-CBET 1039531. Period: September 1, 2010 – August 31, 2012. Budget: \$65,688. (Joint grant with PI: Y. Liu.)

(10) L. C. Nitsche, Co-PI, "GILEE: Establishing a Graduate Interdisciplinary Liberal Engineering Ethics Curriculum." NSF-DBI 0832738. Period: August 15, 2008 – August 14, 2011. Budget: \$49,999. (Joint grant with PI: S. Murad and other Co-PI: L. E. Wedgewood.)

(9) L. C. Nitsche, PI, "Aspen Modeling of Thermochemical Cycles." Argonne National Laboratory Subcontract 9J-30282, Period: 05/03/2010 – 9/30/2011. Budget: \$33,209. (Joint grant with Co-PI: L. E. Wedgewood.)

(8) L. C. Nitsche, PI, "Evaluation of Three Related Forms of a Copper-Chlorine Thermo-Chemical Cycle for Hydrogen Production." Argonne National Laboratory Subcontract continuation. Period: 9/15/2006 – 12/30/2007. Budget: \$55,000. (Joint grant with Co-PI: L. E. Wedgewood.)

(7) L. C. Nitsche, PI, "Evaluation of Three Related Forms of a Copper-Chlorine Thermochemical Cycle for Hydrogen Production." Argonne National Laboratory Subcontract 6F-00251. Period: 05/15/2006 – 09/15/2006. Budget: \$42,000. (Joint grant with Co-PI: L. E. Wedgewood.)

(6) L. C. Nitsche, PI, "Economic analysis of a desalination process using zeolite membranes." Subcontract from New Mexico Institute of Mining and Technology. Period: 1/01/ 2005 – 05/31/2006. Budget: \$30,000.

(5) L. C. Nitsche, USIA Fulbright Senior Scholar Program, 1999-2000, Award #9498: Austria, Research. Budget: ATS 125,000 (approximately \$9,600).

(4) L. C. Nitsche and J. M. Nitsche, PIs on NSF conference grant administered through UIC. Award date: 07/01/1995. Grant number CTS-9525791. Budget: \$8,300. Supporting package of corporate sponsorships and donations: approximately \$3,500.

(3) L. C. Nitsche, PI, 1994 NSF Young Investigator (NYI) Award; Grant number: CTS-9457039. Period: 09/01/ 1994 – 08/31/1999. Budget: \$135,895.

(2) L. C. Nitsche, PI, ACS-Petroleum Research Fund Type G grant: "Nonlinear Hydrodynamic Drift Effects in Microporous Transport of Colloids and Macromolecules." Grant number: ACS-PRF# 28439-G9. Period: 9/01/1994 – 8/31/1996. Budget: \$20,000.

(1) L. C. Nitsche, PI, NSF Research Initiation Award: "Antisedimentation Dialysis: Fundamentals and Applications in Membrane Characterization, Fractionation of Macrosolutes, and Simulation of Microgravity." Grant number: CTS-9210277. Period: 06/01/1992 – 11/30/1995. Budget: \$91,680.

Symposia / technical sessions organized / chaired: 13

Representative presentations at technical conferences (51 cumulative).

L. C. Nitsche (Speaker), R. G. Henriquez Rivera, P. Leon Plata and Y. Liu, "Shape Evolution of Miscible Drops with Arbitrary Viscosity Ratio: Lagrangian-Eulerian Swarms of Stokeslets and Subgrid Resolution" (Presentation 444b). AIChE 2017 Annual Meeting, Minneapolis, Minnesota October 29 – November 3, 2017.

L. C. Nitsche (Speaker), J. M. Nitsche and G. B. Kasting, "Microscopic Diffusion Model and Particle-Based Computer Simulations of Stratum Corneum Permeability" (Invited Talk, 1473), InterPore 2016 – 8th International Conference on Porous Media & Annual Meeting, Cincinnati, Ohio, May 9-12, 2016.

L. Pyrak-Nolte, E. Boomsma and L. C. Nitsche (Speaker), "Wall effects in the sedimentation of micro- and nano-particulate swarms within fractures: combined insights from experiments and computer simulations" (Talk 1050), InterPore 2016 – 8th International Conference on Porous Media & Annual Meeting, Cincinnati, Ohio, May 9-12, 2016.

J. M. Nitsche (Speaker), L. C. Nitsche and G. B. Kasting, "A New Microscopic Model of Permeability and Lateral Diffusion in the Stratum Corneum Barrier Layer of Skin" Paper 571h, AIChE 2014 Annual Meeting, Atlanta, GA, November 16-21, 2014.

L. C. Nitsche (Speaker), J. M. Nitsche and G. B. Kasting, “Modeling of Diffusion in Stratified Epithelia Using Smoothed Particle Hydrodynamics” (Presentation 549i). AIChE 2013 Annual Meeting, San Francisco, CA, November 3-8, 2013.

L. C. Nitsche (Speaker) and B. Bernal, “Asymptotic Theory and Numerical Analysis for Unraveling the Stokes Flow Singularity At the Junction Between Solid and Porous Walls With Arbitrary Wedge Angle” (Presentation 368a) AIChE 2013 Annual Meeting, San Francisco, CA, November 3-8, 2013.

L. C. Nitsche. (Speaker), C. J. Jameson and S. Murad, “Molecular Simulation and Hydrodynamic Characterization of Water in CNT's - Influence of Electric Fields on Wetting and Infiltration” (Presentation 574g). AIChE 2005 Annual Meeting, Cincinnati, Ohio, October 30 – November 4, 2005.

L. C. Nitsche (Speaker), A. Nguyen and G. Evans, “Secondary Cohesion and Chemical Potential Models for Diffuse Interfaces” (Presentation 124e). AIChE 2005 Annual Meeting, Cincinnati, Ohio, October 30 – November 4, 2005.

Graduate research students

Prashanth Parthasarathi	PhD	Summer 2008
Javier Rios	MS	Summer 2006
Olga Jedry	MS	Fall 2005
Tejas Shah	MS	Spring 2005 (co-advised with S. Murad)
Weidong Zhang	PhD	Spring 2004
Shan Zhuge	MS	Fall 1995

Service activities at University of Illinois at Chicago 1991-2014 (before Interim Department Head and Associate Dean appointments).

- Departmental committees and assignments.
 - ABET Accreditation Coordinator, AY 2006-07 through 2013-14
 - Chair, Faculty Search Committee, AY 1996-97.
 - Member, Faculty Search Committee, AY 1997-98, 2006-07
 - Director of Undergraduate Studies, AY 2005-06 through 2013-14
 - Chair, Undergraduate Committee, AY 1994-95, 1995-96, 1998-99, 2003-04, 2004-05.
 - Member, Undergraduate Committee, AY 1991-92, 1998-99, 2000-2001, 2001-02; Fall 2002.
 - Member, Graduate Committee, AY 1991-92, 1994-95, 1998-99.
 - Member, Departmental Advisory Committee, AY 1993-94, 2006-07, 2007-08, 2014-15, 2015-16, 2016-17.
 - Member, Shop, Lab, and Computer Committee, AY 1993-94.
 - Member, Computer Committee, AY 2000-01, 2001-02.
 - Seminar coordinator, AY 2005-06, 2006-07, 2007-08, 2008-09.
 - Timetable coordinator, AY 1993-94, 1994-95, 1995-96, 1996-97.
 - External Advisory Board Coordinator AY 2005-06 through 2013-14
 - Faculty advisor for AIChE student chapter 2006-07, 2007-08, 2012-13.
- College committees.
 - Co-Chair, Diversity Committee, AY 2008-9 through 2013-14.
 - Secretary, Educational Policy Committee, AY 1991-92, 1992-93.
 - Chair, Educational Policy Committee, AY 2006-07, 2007-08, 2010-11
 - Member, Educational Policy Committee, AY 1998-99, 2005-06, 2008-09 through 2013-14.
 - Member, Engineering Physics Review Committee, Spring 1995; AY 1995-96.
 - Member, Review Committee for the Norman Parker and Paul M. Chung (student) awards, Spring 1995.
- University Committees
 - Departmental Facilitator, WISE (Women in Science and Engineering Committee), AY 2005-06 through 2013-2014
- Other service activities
 - UIC Affiliate Professor, Project Lead the Way (Secondary educational outreach), 2005-2006. www.pltw.org
 - Fellow of the Honors College, AY 1994-95, 1995-96, 1996-97, 2006 to current
 - Technical Judge for Engineering Expo, Spring 1994, Spring 1996.
 - Four lectures on applied mathematics and differential equations as part of EIT review sessions administered by Tau Beta Pi: Fall 1993, Fall 1995, Spring 1997, Spring 1998.
 - Reviewer of manuscripts for *J. Fluid Mech.*, *J. Non-Newtonian Fluid Mech.*, *Phys. Fluids*, *Int. J. Multiphase Flow*, *Int. J. Heat Mass Transfer*, *J. Eng. Math.*, *AIChE J.*, *Indust. Eng. Chem. Res.*, *Chem. Eng. Sci.*, *Power Technol.*, *Comput. Chem. Eng.*, *Rheol. Acta*, *I&EC Research*,
 - Reviewer of grant proposals for the National Science Foundation (12 review panels since 2005) and the ACS Petroleum Research Fund.

Research Themes

Papers Categorized Within Research Themes (CONFIDENTIAL)

Ludwig Carlos Nitsche, Ph.D.
Associate Dean for Undergraduate Affairs, College of Engineering
Associate Professor of Chemical Engineering
University of Illinois at Chicago
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Chicago, IL 60607
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Reverse chronological in each theme area.

Numbered items refer to refereed journal publications.

Asterisk indicates papers co-authored with faculty colleagues in UIC Chemical Engineering.*

Drop fluid dynamics and applications in drug delivery.

- [30] P. Leon Plata, Y. Liu and L. C. Nitsche (2018), Interaction of Multiple Drops and Formation of Toroidal-Spiral Particles, *Phys. Rev. Fluids*, **3**, 093601. DOI: 10.1103/PhysRevFluids.3.093601
- L. C. Nitsche and Y. Liu, Self-assembled toroidal-spiral particles and manufacture and uses thereof, *US Patent 8,852,645*, Issued October 7, 2014.
- [27] V. Sharma, M. Köllmer, M. Szymusiak, L. C. Nitsche, R. A. Gemeinhart and Y. Liu (2014), Toroidal Spiral Particles for Codelivery of Anti-VEGFR-2 Antibody and Irinotecan: A Potential Implant to Hinder Recurrence of Glioblastoma Multiforme, *Biomacromolecules*, **15**, 756-762 (2014). DOI: 10.1021/bm401550r
- [25] M. Szymusiak M, V. Sharma V, L. C. Nitsche and Y. Liu (2012), Interaction of sedimenting drops in miscible solution – formation of heterogeneous toroidal-spiral particles. *Soft Matter*, **8**, 7556-7559 (2012). DOI: 10.1039/c2sm25928a
- [24] V. Sharma, M. Szymusiak, H. Shen, L. C. Nitsche, and Y. Liu (2012), Formation of polymeric Toroidal-spiral particles, *Langmuir*, **28**, 729–735. DOI: 10.1021/la203338v
- [22] L. C. Nitsche and P. Parthasarathi (2010), Cubically Regularized Stokeslets for Fast Particle Simulations of Low-Reynolds-Number Drop Flows, *Chem. Eng. Commun.*, **197**, 18-38. DOI: 10.1080/00986440903070809
- [18] L. C. Nitsche, A. Nguyen and G. Evans (2004), Globally cohesive drops without interfacial tension. *Chem. Phys. Lett.*, **397**, 417-421. DOI:10.1016/j.cplett.2004.09.006

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- [13] G. Machu, W. Meile, L. C. Nitsche and U. Schaflinger (2001), Coalescence, torus formation and break-up of sedimenting drops: experiments and computer simulations. *J. Fluid Mech.*, **447**, 299-336. DOI: 10.1017/S0022112001005882

Continuum modeling of flow and mass transfer in multiphase systems: porous media, membrane systems, diffusion, ultrafiltration and desalination, transdermal drug delivery.

- [32] I. L. Molnar, E. Pensini, Md A. Asad, C. A. Mitchell, L. C. Nitsche, L. J. Pyrak-Nolte and M. M. Krol (2019), Colloid Transport in Porous Media: A Review of Classical Mechanics and Emerging Topics, *Transp. Porous Media*, In Press.
- [31] L. C. Nitsche, J. M. Nitsche and G. B. Kasting (2019), Microscopic Models of Drug/Chemical Diffusion Through the Skin Barrier: Effects of Diffusional Anisotropy of the Intercellular Lipid, *J. Pharm. Sci.*, In press. DOI: 10.1016/j.xphs.2018.11.014
- [28] L. C. Nitsche and B.A. Bernal (2018), Stokes flow singularity at a corner joining solid and porous walls at arbitrary angle, *J. Eng. Math.*, **108**, 1–23. DOI: 10.1007/s10665-017-9901-2
- [26] L. C. Nitsche and P. Parthasarathi (2012), Stokes flow singularity at the junction between impermeable and porous walls. *J. Fluid Mech.*, **713**, 183-215. DOI:10.1017/jfm.2012.454
- [15] L. C. Nitsche and W. Zhang (2002), Atomistic SPH and a link between diffusion and interfacial tension. *AIChE Journal*, **48**, 201-211. DOI: 10.1002/aic.690480203
- [8] L. C. Nitsche (1995), A singular perturbation analysis of antipolarization dialysis at high aspect ratio. *Ind. Eng. Chem. Research*, **34**, 3590-3605. DOI: 10.1021/ie00037a049
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Microscale and nanoscale modeling of flow and mass transfer: porous media, reverse osmosis, diffusion.

- [17] S. Murad and L. C. Nitsche (2004), The effect of thickness, pore size and structure of a nanomembrane on the flux and selectivity in reverse osmosis separations: a molecular dynamics study. *Chem. Phys. Lett.*, **397**, 211-215. DOI:10.1016/j.cplett.2004.08.106
- [6] P. S. Grassia, E. J. Hinch and L. C. Nitsche (1995), Computer simulations of Brownian motion of complex systems. *J. Fluid Mech.*, **282**, 373-403. DOI: 10.1017/S0022112095000176
- [4] E. J. Hinch and L. C. Nitsche (1993), Nonlinear drift interactions between fluctuating colloidal particles: oscillatory and stochastic motions. *J. Fluid Mech.*, **256**, 343-401. DOI: 10.1017/S0022112093002812
- [3] L. C. Nitsche and H. Brenner (1990), Hydrodynamics of particulate motion in sinusoidal pores via a singularity method. *AIChE Journal*, **36**, 1403-1419. DOI: 10.1002/aic.690360913
- L. C. Nitsche, Appendix: Refined model with sphere-sphere interactions and leading-order wall effects (pp. 358-361) in: R. Zenit and M. L. Hunt, The impulsive motion of a liquid resulting from a particle collision, *J. Fluid Mech.* **375**, 345-361 (1998).

Flow and rheology of polymer solutions.

- [20] L. C. Nitsche (2006), Accurate asymptotic formulas for the transient PDF of a FENE dumbbell in suddenly started uniaxial extension followed by relaxation. *J. Non-Newtonian Fluid Mech.*, **135**, 109-116. DOI: 10.1016/j.jnnfm.2006.01.008
- [19] L. C. Nitsche, W. Zhang and L. E. Wedgewood (2006), Asymptotic basis of the L-closure for finitely extensible dumbbells in suddenly started uniaxial extension. *J. Non-Newtonian Fluid Mech.*, **133**, 14-27. DOI:10.1016/j.jnnfm.2005.10.004
- [12] L. C. Nitsche and E. J. Hinch (1997), Shear-induced lateral migration of Brownian rigid rods in parabolic channel flow. *J. Fluid Mech.*, **332**, 1-21. DOI: 10.1017/S0022112096003369
- [11] L. C. Nitsche (1996), Fluctuation-flipping orbits of freely-draining dumbbells in converging-diverging pore flows. *Chem. Eng. Commun.*, **148-150**, 593-621. DOI: 10.1080/00986449608936535
- [9] L. C. Nitsche (1996), Cross-stream migration of bead-spring polymers in nonrectilinear pore flows. *AIChE Journal*, **42**, 613-622. DOI: 10.1002/aic.690420303

Numerical analysis.

- [34] R. G. Henriquez Rivera and L. C. Nitsche (2018), Flying into the fog: A variational method for Fourier extension of the third kind and implications for interpolation with radial basis functions, Manuscript in preparation for submission to *J. Comput. Phys.*
- [33] L. C. Nitsche, G. B. Kasting and J. M. Nitsche, Physics-based algorithms for the diffusion velocity method in multiphase systems: Adaptive range finding, boundary corrections and particle redistribution, Manuscript in preparation for submission to *J. Comput. Phys.*
- [10] L. C. Nitsche, (1996). One-dimensional stretching functions for patched grids, and associated truncation errors in finite-difference calculations. *Commun. Numer. Methods. Eng.*, **12**, 303-316. DOI: 10.1002/(SICI)1099-0887(199605)12:5<303

Research and publications in other areas.

- [29*] A. Aljehani, S. A. K. Razackc, L. Nitsche, S. Al-Hallaj (2018), Design and optimization of a hybrid air conditioning system with thermal energy storage using phase change composite, *Energy Convers. Manage.*, **169**, 404—418. DOI: 10.1016/j.enconman.2018.05.040
- [23] Y. Lei, J. Jelic, L. C. Nitsche, R. Meyer and J. Miller (2011), Effect of Particle Size and Adsorbates on the L3, L2 and L1 X-ray Absorption Near Edge Structure of Supported Pt Nanoparticles, *Topics in Catalysis*, **54**, 334–348.. DOI 10.1007/s11244-011-9662-5
- [21] N. S. Parkar, B. S. Akpa, L. C. Nitsche, L. E. Wedgewood, M. S. Sverdlov, O. Chaga and R. D. Minshall (2009), Vesicle formation and Endocytosis: Function, machinery, Mechanisms, and Modeling (Forum Review Article), *Antioxidants & Redox Signaling*, **11**, 1301-1312. DOI: 10.1089/ars.2008.2397

L. C. Nitsche, Book Review (*Microhydrodynamics: Principles and Selected Applications*. By Sangtae Kim and Seppo J. Karrila, Butterworth-Heinemann, Boston, 1991, 507+xxiii pp.), *AIChE Journal*, **40**, 739-743 (1994).

L. C. Nitsche, A new lift for centrifugal impellers? *Chem. Eng. Progress*, **87**, 73-79 (1991).

References

References.

Dr. Sangtae Kim
Jay and Cynthia Ihlenfeld Head of Chemical Engineering
Distinguished Professor
Davidson School of Chemical Engineering
Purdue University

Dr. Kathleen J. Stebe
Richer & Elizabeth Goodwin Professor of Chemical and Biomolecular Engineering
Deputy Dean for Research and Innovation, School of Engineering and Applied Science
University of Pennsylvania

Professor Sohail Murad
Chair, Department of Chemical and Biological Engineering
Illinois Institute of Technology

Dr. John L. Anderson
Distinguished Professor
Department of Chemical & Biological Engineering
Illinois Institute of Technology



**University of the District of Columbia
Job Description**

Job Title: Associate Dean, School of Engineering and Applied Sciences

Occupational Series/Pay Plan/Grade: DS301/0058/03

FLSA: Exempt

Job Code: 701019

Union Status: Non-Union

GENERAL DESCRIPTION OF THE JOB:

Associate/Assistant Dean, School of Engineering and Applied Sciences (SEAS) applicant must be well equipped for this role at the University of the District of Columbia (UDC). While the typical qualifications for the ideal candidate include a minimum of ten years of experience in engineering and/or computer science programs, we welcome applications from motivated and talented individuals who do not precisely fit that profile. Under the direction of the Dean of SEAS, assumes responsibility for daily operation of the school including the faculty and staff development. In the absence of the Dean, provides continuity of the school operations. SEAS is especially interested in qualified candidates who can contribute to the mission of UDC.

ESSENTIAL DUTIES & RESPONSIBILITIES:

Planning, Continuous Improvement and Accreditation:

- Works with the Chairs and Program Directors to facilitate the growth of current undergraduate and graduate programs
- Promote new graduate programs in engineering and computer science including Ph.D.
- Oversees the strategic plan and works with the departmental assessment coordinators in the continuous improvement plan.
- Works with support staff and assists the individual departments in maintaining and expanding enrollment efforts.
- Co-ordinates the efforts in the preparation of the school's ABET review for Engineering as well as Computer Science programs.
- Works with the Dean on issues related to curriculum, research & development, projection of the school to external clientele, maintenance of the laboratory and its updating, ABET related infrastructure support.
- From time to time, reviews the undergraduate curriculum in association with the Chairs so that the curriculum continuously improves and matches the school mission. This also includes encouragement in the involvement of industrial and other external partners.
- Works with the Chairs to facilitate resolving academic issues including those cross-departmental lines.
- Encourages involvement of industrial and other external partners.
- Leads assessment and continuous improvement efforts

Budget, Management and Supervision

- Works with the Dean in preparing and implementing long-range plan and associated budgets and manages the school-wide budget
- Oversees and supervises available cash supplies for department and facility.
- Represents the Dean when the Dean is unavailable; serves as the school representative with office of admission/ registrar, when appropriate
- Coordinates with technicians so that the labs are functional and maintained in a timely manner.
- Works with the Chairs to facilitate resolving academic issues those cross-departmental lines.
- Associate Dean provides an input to the Dean in the evaluation of faculty

OTHER DUTIES:

Demonstrated knowledge and experience with ABET accreditation and with the Computer Accreditation Commission of ABET in particular is preferred. Experience with budget development is also preferred but not required.

MINIMUM JOB REQUIREMENTS:

PhD in the areas of Engineering or Computer Science or related experience.

REQUIRED COMPETENCIES:

- Candidates must have an earned doctorate in Computer Science, IT, or closely related field and a strong record of teaching, research, and scholarly activities commensurate with appointment at the rank of assistant or associate professor.
- Excellent leadership, management, interpersonal, verbal and written communication, financial management and problem-solving skills.
- Knowledgeable of the best models and practices available to encourage student success. This will require regular research in this area, specific training, as necessary, involvement in relevant forums and conferences and regular reading of higher education news sources.
- Ability to exercise, initiative and creativity in implementing responsibilities.
- Dedication to students, commitment to excellence in creating and providing student support services and ensuring student success.
- Candidates should have a strong commitment to undergraduate and graduate teaching.
- Commitment to working in a collaborative environment with other team members.
- Exceptional interpersonal communication and management skills necessary to promote programs and to sustain strong student enrollment.

STANDARDS & EXPECTATIONS:

1. Expectations of the job:

Work consists of a variety of complex inter-related tasks. The Incumbent is expected to function with considerable independence on all assignments and to use initiative and seasoned judgment in arriving at sound conclusions and recommendations. Recurring contacts are made with students, staff members, faculty, administrators and the public, as well as with staff of institutions are University partners. Contacts are established to open channels of communication

and acquire information for decision-making and disseminations to others. Normal physical dexterity is required. The work is generally performed in an office setting.

2. Development and Counseling:

Employee is expected to participate in activities that will help in the development of his/her career, and help in the performance of the job. Employee may seek counseling from the immediate supervisor.

3. Training:

Training is available to help improve the skill and knowledge level, and for updates on the latest techniques, methods and theories that are being used in the industry.

4. Knowledge of UDC Rules and Regulations:

The position requires a solid understanding of the policies and procedures of the Board of Trustees, the University, as well as applicable Federal and D.C. government laws. The university provides all training required by OSHA to ensure employee safety.

The University of the District of Columbia is an Equal Opportunity Employer (EOE).

Note: The University reserves the right to change or reassign job duties as provided in policy and negotiated agreements.

Employee Signature

Date

Print Name

Date

Devdas Shetty

Supervisor Signature

Date

Devdas Shetty, Dean
Print Name

10/21//2018
Date