Dear New PPSM Student,

Welcome to PPSM, MIT’s distinguished doctoral program in polymer and soft matter science and engineering!

On the following pages, you will find information about helpful resources in the PPSM community, and about the structure of PPSM as it relates to your “home department.” During your time at MIT, we look forward to assisting you with any questions or concerns that may arise regarding policies, procedures and program requirements.

For over three decades, PPSM has established itself as a nucleus for polymers and soft matter-related study, research, and comradery at MIT. Among our unique strengths are the polymer/soft matter-focused core curriculum, our seminar series bringing internationally-recognized scientists to MIT, and the wide spectrum of research topics under investigation.

We encourage your active participation in the PPSM Graduate Student Association (PGSA), which actively organizes events large and small throughout the year to assist with qualifying procedure preparation, building community, and more.

PPSM alums are a specially-qualified few whose membership includes current faculty at Harvard, MIT, Princeton, Yale and a number of leading overseas universities; leadership positions in both start-ups and established firms such as 3M, DuPont, Millennium Pharmaceuticals, and Bridgestone Tire; and prominent government appointments with US government agencies including NASA, NIST, and the FDA.

We are delighted to welcome each of you to MIT, and invite you to contact either myself (aalexand@mit.edu) or Administrative Assistant Gregory Sands (gsands@mit.edu) regarding any questions that may arise as you progress. Best wishes for a rewarding year ahead!

Sincerely,

Prof. Alfredo Alexander-Katz, Director
MIT Program in Polymers and Soft Matter (PPSM)
Faculty, MIT Dept. of Materials Science & Engineering
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The MIT Program in Polymer and Soft Matter (formerly PPST, Program in Polymer Science and Technology) was founded in 1986, with the goal of providing educational opportunities for students who wish to focus their graduate education within the broad field of polymers.

Polymer research activities at MIT started in the 1920’s and 1930’s as exciting advances were being made in the field of polymer technology. Since then, several MIT departments have joined forces to develop a strong educational program in polymers and soft matter. The Program in Polymers and Soft Matter is an interdepartmental program which fosters collaborations in these fields by bringing together students from different departments, who share a common interest in polymers.

PPSM provides a core curriculum in polymer studies and a doctoral qualifying examination that is accepted in place of departmental exams by five participating MIT departments (Biological Engineering, Chemistry, Chemical Engineering, Materials Science and Engineering, and Mechanical Engineering).
“PPSM is not only a great program for students who wish to carry on a career in the fields of polymers and soft matter, but it is also an environment auspicious to collective emulation and intellectual stimulation, where one can learn from inspiring scientists and professors of the field, and work with highly motivated, like-minded students. What I really love in PPSM is the spirit of community and collaboration that exists between students from different backgrounds.”

“PPSM is a program which provides interdisciplinary exposure to its students while providing fundamental knowledge in polymer science. Though there will be challenges, PPSM fosters a very close-knit community that allows students to support each other so that everyone can succeed.”

The goal of PPSM is to foster a spirit of community and collaboration among the large group of students, post-docs, faculty, and visitors involved in polymer-related activities at MIT.

PPSM produces a popular weekly research seminar, coordinates the schedules of visitors to MIT from the worldwide community of polymer specialists in industry, academia and government, and arranges special events and research poster competitions for the MIT polymer community.
PPSM Faculty & Affiliates

PPSM Director

Prof. Alfredo Alexander-Katz*
aalexand@mit.edu – (617) 452-2238
Polymer physics, drug-delivery, self-assembly, adhesion, driven systems.

PPSM Faculty

Prof. Daniel Blankschtein
dblank@mit.edu – (617) 253-4594
Statistical mechanics, thermodynamics and physical chemistry of complex fluids and micellar solutions.

Prof. Patrick S. Doyle
pdoyle@mit.edu – (617) 253-4534
Microrheology, biophysics, microfluidics separation, polymer physics, transport phenomena.

Prof. Ariel L Furst*
afurst@mit.edu – (617) 253-4677
Bioelectrochemistry, clinical diagnostics, biotechnology, surface chemistry, self-assembly.

Prof. Paula T. Hammond
hammond@mit.edu – (617) 258-7577
Molecular design and synthesis, functionalized polymers, optical properties of polymers, liquid crystalline polymeric materials.

Prof. Bradley D. Olsen
bdolsen@mit.edu – (617) 715-4548
Block copolymers, soft condensed matter physics, protein-based materials, bioelectronics.
Prof. Qin (Maggie) Qi*
qumqi@mit.edu – (617) 253-0096
Complex fluids, transport phenomena, biomechanics, microfluidics, microphysiological systems, biomedical engineering.

Prof. Gregory C. Rutledge*
rutledge@mit.edu – (617) 253-0171
Polymer physics, thermodynamics of bulk polymers, molecular modeling.

Prof. Hadley D. Sikes
sikes@mit.edu – (617) 253-5224
Functional polymeric materials, macromolecular design, clinical diagnostics.

Prof. Zachary P. Smith*
zp smith@mit.edu – (617) 715-4503
Membrane separations, polymer physics, polymer chemistry, porous materials, nanotechnologies.

Prof. Gareth H. McKinley
gareth@mit.edu – (617) 258-0754
Non-Newtonian fluid dynamics, polymer processing, viscoelasticity, flow stability, extensional rheology and filament stretching.

Prof. Ritu Raman
ritur@mit.edu – (617) 253-2201
Soft materials, biological actuators, tissue engineering.

Prof. Ioannis Yannas
yannas@mit.edu – (617) 253-4469
Biodegradable polymeric templates for organ regeneration, design and clinical testing of artificial skin.

Prof. Xuanhe Zhao
zhaox@mit.edu – (617) 324-6367
Soft materials, solid mechanics, bioinspired skin, electroactive polymers, surface instabilities, tough hydrogels.
Prof. Aristide Gumyusenge
aristide@mit.edu – (617) 452-3524
Electronic materials, semiconducting polymers, surfaces, interfaces and thin-films.

Prof. Rafael Gomez-Bombarelli
rafagb@mit.edu – (617) 253-5632
Computational materials science, atomistic simulations, machine learning.

Prof. Robert J. Macfarlane*
rmacfarl@mit.edu – (617) 253-3300
Biomaterials, composites, electronic, photonic, and magnetic materials, materials chemistry, mechanical behavior of materials, nanotechnology, polymers, self-assembly.

Prof. Christine Ortiz
cortiz@mit.edu – (617) 452-3084
Macromolecular systems, nanomechanics, structure-property relationships, biomimetic materials design.

Prof. Julia Ortony
ortony@mit.edu – (617) 253-2063
Molecular engineering, self-assembly, energy materials, biomaterials, dynamics, water.

Prof. Darrell J. Irvine
djirvine@mit.edu – (617) 452-4174
Biomaterials surfaces, tissue engineering, polymer-biocopolymer nanosystems, bioengineering of the immune system.

Prof. Katharina Ribbeck
ribbeck@mit.edu – (617) 715-4575
Physiological transport, mucus barriers, biofilms, pathogen/host interactions.
Prof. Jeremiah A. Johnson*
jaj2109@mit.edu – (617) 253-1819
Drug-delivery, hydrogels, biopolymers, nanoparticles, semiconducting polymers, organometallic polymers, photoactive polymers.

Prof. Robert C. Armstrong
rca@mit.edu – (617) 253-4581
Polymer fluid mechanics, rheology, polymer processing kinetic theory and rheology, applied mathematics.

Prof. Robert S. Langer
rlanger@mit.edu – (617) 253-3107
Polymeric, controlled drug-delivery systems.

Prof. Keith A. Nelson
kanelson@mit.edu – (617) 253-1423
Femtosecond-millisecond time resolved spectroscopy of polymers and other viscoelastic media.

PPSM Faculty Affiliates

* will have lab openings this September for PPSM 1st-year students.

Other Faculty may also have openings in the Fall. Please, reach out to them if you are interested in joining their research group.
PPSM Contacts

**PPSM Office**
Room 76-253  
Massachusetts Institute of Technology  
77 Massachusetts Avenue  
Cambridge, MA 02139

**Director**
Professor Alfredo Alexander-Katz  
Department of Materials Science and Engineering  
NE46-605  
(617) 452-2238  
aalexand@mit.edu

**Administrator**
Gregory Sands  
76-253  
gsands@mit.edu  
(617) 253-0949 or (617) 301-0091

Office Hours: Mon—Wed 3-7 pm (Please email/call ahead)  
Available via Email or Phone on Thu-Fri 3-7 PM

**PPSM Web Site**
http://polymerscience.mit.edu
Home Department
Graduate Offices and Faculty Contacts

- **Academic Administrator:** Dalia Fares
  - (16-267) 253-5804
  - dalia@mit.edu
- **Faculty:** Prof. Katharina Ribbeck
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- **Faculty:** Prof. Timothy M. Swager
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  - tswager@mit.edu

- **Academic Administrator:** Angelita Mireles
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  - angelita@mit.edu
- **Graduate Adm. Assistant:** Amanda Bendzel
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  - abendzel@mit.edu
- **Faculty:** Prof. Alfredo Alexander-Katz
  - NE46-605 (617) 452-2238
  - aalexand@mit.edu

- **Graduate Administrator:** Saana J. McDaniel
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  - saana@mit.edu
- **Graduate Adm. Assistant:** Una Sheehan
  - 1-112 (617) 253-2291
  - oona@mit.edu
- **Faculty:** Prof. Gareth H. McKinley
  - 3-250 (617) 258-0754
  - gareth@mit.edu

PPSM Contacts
PPSM Doctoral Path

1st year

Choose Advisor
- Timeline for choosing an advisor is the same as in home department

Core
- Classes subject to change every year
- Typically, Biomaterials, Mechanics, Physics, and Synthesis (see page 14)

2nd year

Minors
- Class requirements determined by home department (see page 18)

Electives
- 2 required polymer-related electives chosen by student

3rd year +

Minor/Electives
- Complete unfinished class requirements

Thesis Research
- Continue with thesis research
Qualifying Exams
• Based only on core classes
• Written and oral exam
• Typically held in late May after finals

Thesis Proposal
• Thesis committee assembled by student
• Can be done any time in second year
• NOT an exam

Thesis Defense
• On average, around 5th year
• Includes written dissertation and thesis presentation

"PPSM is a unique and inspiring community that I can lean on for support in classes, research, and life in general!" - Nadia, 2nd year DMSE/PPSM, Prof. Ariel L. Furst’s group (ChemE)

Advance to doctoral candidacy!

Graduate with PhD!
PPSM Core Classes

Fall 2022

- **10.568/3.942** Physical Chemistry of Polymers/Polymer Physics
- **3.963** Biomaterials Science and Engineering
  - OR **2.79** Biomaterials: Tissue Interactions
- **2.075** Mechanics of Soft Materials
- **3.903/10.960** Seminar in Polymers and Soft Matter

Spring 2023

- **10.569** Synthesis of Polymers

---

**Nick**
2nd year MechE/PPSM
Prof. John Hart’s group (MechE)

"PPSM gives you access to resources, faculty, and courses in five separate departments - it's invaluable."
Additional Class Options

In addition, students are encouraged to enroll in Elective Classes depending on their individual backgrounds and interests. Some of these classes may be required by student’s home department (see “Departmental Minor Requirements” section page 18). A selection of elective subjects that may be of interest to the student are listed below:

Fall 2022

- **BE**: Any class that counts towards your minor.
- **ChemE**: Any core class or elective that would count towards your minor. Taking 10.40 Chemical Engineering Thermodynamics is highly recommended, if the schedule permits.
- **Chemistry**: 5.53 Molecular Reactivity
- **DMSE**: 3.20 Materials at Equilibrium or an elective that is not polymer related.
- **MechE**: Any class that counts towards your minor. MechE is very flexible in the classes you need to take.

Spring 2023

- **BE**: Any class that counts towards your minor.
- **ChemE**: Any core class or elective that would count towards your minor.
- **Chemistry**: 5.53 Molecular Reactivity
- **DMSE**: 3.21 Kinetic Processes in Materials or an elective that is not polymer related.
- **MechE**: Any class that counts towards your minor.
Choose your advisor(s)

• Meet with at least 5 MIT faculty and complete the Advisor Research Form (see page 27)
• Follow your home department’s administrative requirements if applicable

Core Classes

• 20.363 Biomaterials Science and Engineering
• 3.942 Polymer Physics
• 2.075 Mechanics of Soft Materials

Qualifying Exams

• Written exam ~1-2 weeks after finals
• Oral exam ~1 week after written
• Progress to doctoral candidacy!

Classes

• 10.569 Polymer Synthesis
• Polymer elective and/or home department requirement
• PGSA qual prep sessions

Note: This is a suggested timeline. Core class offerings are subject to change every year. Minor requirements and electives can be taken at any time during the doctoral path.
Recommended textbooks

In addition to the textbooks recommended by your instructors, the following textbooks will be helpful for understanding the PPSM core coursework and preparing for your qualification exams:


Many of these texts should be available in the MIT Library – check out the Hayden Library Reserve Stacks, Science Library Stacks, and Barker Engineering Library Stacks.

Additional recommended textbooks include:

- **Contemporary Polymer Chemistry** by Allcock, Lampe, and Mark
- **Fundamentals of Polymer Processing** by Middleman;
- **The Physics of Polymers: Concepts for Understanding their Structures and Behavior** by Strobl;
- **An Introduction to Polymer Science** by Elias.
Current Minor Requirements for BioEng/PPSM, Chemistry/PPSM, ChemE/PPSM, DMSE/PPSM, and MechE/PPSM students are shown below. These menus are subject to change and are shown here for general guidance. PPSM students are expected to check with the Graduate Office of the home department for periodic updates.

- **Department of Biological Engineering**
  REQUIREMENT: [SUBJECT TO REVISION] Complete a minimum of 3 BE subjects, including:
  - 20.440 Analysis of Biological Networks
  - 20.420 Bimolecular Kinetics and Cellular Dynamics
  - 20.430 Fields, Forces, and Flows in Biological Systems

- **Department of Mechanical Engineering**
  REQUIREMENT: Complete with a grade of B or higher, a minimum of 3 additional ME graduate-level (G or H level) subjects that are distributed over at least two of the seven ME Thrust Areas (http://me.mit.edu/research)

- **Department of Chemical Engineering**
  REQUIREMENT: Complete with a grade of B or higher, a minimum of 3 ChemE subjects, at least two of which must be from the list of core subjects shown below:
  - 10.34 Numerical Methods Applied to Chemical Engineering
  - 10.40 Chemical Engineering Thermodynamics
  - 10.50 Analysis of Transport Phenomena
  - 10.65 Chemical Reactor Engineering
“PPSM is an interdisciplinary program that helps students to learn polymer science from fundamental to various applications. Four core courses and qualifying exams helped us to broaden and strengthen our perspectives on polymers and utilize them as tools for our graduate research. I strongly recommend this program to anyone who really wants to pursue their graduate research in polymer science.”

Department of Materials Science and Engineering

REQUIREMENT: Complete a minimum of 3 DMSE subjects, including:
- 3.20 Materials at Equilibrium
- 3.21 Kinetic Processes in Materials
- One additional non-polymer graduate subject, 9+ units

In addition, students are encouraged to enroll in Elective Courses depending on their individual backgrounds and interests. A selection of elective subjects can be found in the related course offerings section of this document.

Department of Chemistry

REQUIREMENT: Complete the subject listed below
- 5.47 Tutorial in Organic Chemistry (graded P/F)
PPSM sponsors a series of seminars covering a broad range of topics of general interest to the polymer community, featuring speakers from both on and off-campus.

Fall 2022 Seminars may be presented in person, or virtually. Seminars usually start at 3:30 PM. Live events occur in MIT 56-114.

For further information, please contact Professor Ariel L. Furst at afurst@mit.edu.

**Additional fall 2022 speakers:**

- **SEPT. 4** – Prof. Michael B. Ross (U. Mass. Lowell)
- **SEPT. 21** – Prof. Qin (Maggie) Qi (MIT)
- **SEPT. 28** – Prof. Prof. Ritu Raman (MIT)
- **OCT. 19** – Prof. Cassandra E. Callman (UT Austin)
- **OCT. 26** – Prof. Crystal Chu (Lehigh University)
- **NOV. 2** – Prof. Bjöern M. Reinhard (Boston University)
- **NOV. 9** – Prof. Michael Schulz (Virginia Tech)
- **DEC. 7** – Prof. Quentin Michaudel (Texas A&M)
- **DEC. 14** – Prof. Jodie L. Lutkenhaus (Texas A&M)

Please visit the PPSM website for PPSM Seminar Calendar updates as the term progresses, and for the most up to date information on how each seminar will be presented.

Emails with detailed information will be sent to the PPSM community a few days before each seminar.
Other Seminar Series

❖ **Department of Biological Engineering**

BE offers a series of seminars given by faculty from MIT and other institutions. More information can be found here:

https://be.mit.edu/news-events/seminars

❖ **Department of Chemical Engineering (ChemE)**

ChemE offers MIT faculty seminars for PPSM first-year graduate students. This “Introduction to Chemical Engineering Research” (10.990) focuses on recent developments and research projects available to new graduate students. More information is available on:

https://cheme.mit.edu/news-events/seminar-series/

❖ **Department of Chemistry**

MIT Department of Chemistry offers Faculty Research Talks, which will occur on September 6th, 9th, 14th and 16th in 4-270. Information about other Chemistry seminars can be found here:

https://chemistry.mit.edu/seminar-programs/

❖ **Department of Materials Science & Engineering (DMSE)**

3.201 Introduction to DMSE, (open only to DMSE/PPSM students) may be very helpful in guiding students in their search for a suitable research group. For non-DMSE/PPSM students, materials seminars (which may include some seminars presented by DMSE faculty) information may be found on the DMSE Events Calendar web page:

http://dmse.mit.edu/events

❖ **Department of Mechanical Engineering (MechE)**

The Soft Materials Structures and Devices (SMSD) Seminar series, jointly supported by MIT MechE and MIT DMSE, may be interesting for PPSM students. For the most up to date information on the SMSD seminar series, please contact Coordinator Morgan Middlebrook (mmiddleb@mit.edu). MechE seminars information may be found here:

http://meche.mit.edu/events
The **PPSM Doctoral Qualifying Exam** is traditionally held in late May just after the conclusion of Final Exam week.

**WRITTEN EXAM**
- Single day exam (grading P/F) consisting of four to six one-hour problems.
- Exam content is based upon the required PPSM core classes for your year of entry.
- Written exam is open book/online resources and calculators are permitted.

**ORAL EXAM**
- One-hour process based upon four to six problems (grading P/F).
- Oral exam questions are authored by PPSM core class faculty.
- Student receives four to six exam questions for 15-minute private study period.
- At conclusion of private study period, student is directed to nearby exam room.
- Student participates in oral exam adjudicated by PPSM core faculty.
- Student’s advisor is invited to participate in the panel in a non-grading capacity.
For both the Written and Oral exams:

• All PPSM Written and Oral Qual exam grades are reported to examinees on the day of the oral exam, after all students have completed their oral exams. Students can pass, fail, or conditionally pass.

Conditional Pass…

...may occasionally be granted for the oral and/or written exam(s)
...indicates generally satisfactory exam performance except one area
...entails a short-term additional commitment to improvement in that area
...is accompanied by specific instructions as to what is being recommended and why
...may require or advise the student to take remedial steps such as the following:

✓ Enroll in/Retake one class, in a specific area needing improvement
✓ Serve as a TA for one class in a specific area needing improvement
✓ Other short-term measures recommended by the examining faculty

If you Fail a PPSM Written or Oral Qualifying exam…

...students are permitted a maximum of ONE RETAKE per oral or written exam
...the retake may occur either:

✓ in concurrence with the next regularly scheduled PPSM Qual exams in late May of the following year, OR...
✓ ...if warranted, faculty may instead allow a free-standing retake exam on a more urgent basis, for example, during the following academic year.
PGSA Quals Training Sessions

In the Spring, upper-year PPSM students volunteer to help first-year students practicing for the Quals oral exam. Around Spring break, the PGSA Academic Chairs will organize an event to chat and answer questions about the qualification exams. Quals Training Sessions will then be held once or twice a week for PPSM students to practice answering questions in a format mimicking the exam setting.

Mae
2nd year DMSE/PPSM
Prof. Paula T. Hammond’s group (ChemE)

“Your PPSM peers are your greatest allies!”

Rebecca
2nd year DMSE/PPSM
Prof. Julia Ortony’s group (DMSE)

“My favorite thing about PPSM is the community of students who are very willing to support and help one another!”
PPSM Doctoral Candidates who have passed the PPSM Qualifying Exams must complete a Research Proposal to receive their doctoral degree. Usually, PPSM Research Proposals are scheduled within the year following Quals.

**Departmental Thesis Policies**

Each Department follows different policies regarding the Research Proposal. Please follow the link corresponding to your department to learn more about this important step of your Doctoral Path.

- **Biological Engineering**
  
  https://begradhandbook.mit.edu/

- **Chemical Engineering**
  

- **Chemistry**
  
  https://chemistry.mit.edu/academic-programs/graduate-programs/thesis-preparation/

- **Materials Science and Engineering**
  
  https://dmse.mit.edu/graduate/programs/doctoral/thesis#

- **Mechanical Engineering**
  
PPSM Pre-Graduation Audit Checklist

Required Core PPSM Subjects
Below is an overview of all PPSM requirements. Please see page 14 of this handbook for the exact core class requirements for students entering Fall 2022.

<table>
<thead>
<tr>
<th>Core Subjects Completed (Excluding 10.960/3.903 Seminar)</th>
<th>Y1/Fall:</th>
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<tr>
<td></td>
<td>Y1/Spring:</td>
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<tr>
<td></td>
<td>Y2/Fall:</td>
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<tr>
<td></td>
<td>Y2/Spring:</td>
</tr>
<tr>
<td></td>
<td>Y3/Fall:</td>
</tr>
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<td></td>
<td>Y4/Spring:</td>
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</tbody>
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PPSM Doctoral Quals Exam Written/Oral
☐ Oral-passed month/yr: ______  ☐ Written-passed month/yr: ______

Departmental minor requirements
❖ Biological engineering:
☐ 20.420 ☐ 20.430 ☐ 20.440 ☐ Other: ______
❖ Chemical Engineering
2 or more of the following: ☐ 10.34 ☐ 10.40 ☐ 10.50 ☐ 10.65
AND 1 or more additional non-core ChemE subjects: ______
❖ Chemistry
☐ 5.47 Tutorial in Organic Chemistry
❖ Materials Science and Engineering
☐ 3.20 Materials at Equilibrium
☐ 3.21 Kinetic Processes in Materials
☐ ONE ADDITIONAL non-polymer graduate subject (9+ units)
❖ Mechanical Engineering
Minimum of THREE additional graduate level MechE subjects – must be distributed over AT LEAST TWO of the seven THRUST AREAS:
SUBJ1: _______ SUBJ2: _______ SUBJ3: _______
Important forms

Pre-Graduation Audit Checklist

Advisor Research Form
You can either print a hard copy or have the form completed online via DocuSign. A .pdf version and a tutorial to use DocuSign can be found here:
MIT Polymer Day is an annual day-long symposium to highlight the latest polymers and soft matter research. Polymer Day is organized by active members of the Polymer Graduate Student Association (PGSA) to provide a home for a diverse and interdisciplinary group of scientists and engineers from various US universities, industry professionals, and the broader polymer and soft matter science community.

Each year the symposium holds a poster session, an alumni career panel, seminars on cutting-edge research, and career development workshops. Additionally, the symposium’s networking lunch and career fair offers attendees generous opportunities for networking with our industry sponsors.
Graduate and postdocs students at MIT and other institutions are invited to participate in the poster competition where prizes are awarded.

The symposium brings together researchers and representatives from polymer and soft matter-related industry (including Arkema, Dow, PPG, 3M) to network, create connections, and discuss new collaborations.

After a two year hiatus, in April 2022, our traditional in-person MIT Polymer Day event made a successful post-COVID-19 return, attracting almost 200 participants and 40 poster presenters.

“Polymer day was a great opportunity to get feedback on my research, learn about my colleagues’ work, and open the door to many potential collaborations within and outside of MIT.”
Cabot Corporation is an American specialty chemicals and performance materials company headquartered in Boston, Massachusetts.

The Dow Chemical Company is an American multinational chemical corporation and is among the three largest chemical producers in the world. Dow manufactures plastics, chemicals, and agricultural products.

The 3M Company is an American multinational conglomerate corporation operating in the fields of industry, worker safety, U.S. health care, and consumer goods.

Arkema S.A. is a specialty chemicals and advanced materials company headquartered in France. Arkema is organized into three business segments: Coating Solutions, Industrial Chemicals, and Performance Products.

PPG Industries, Inc. is an American Fortune 500 company and global supplier of paints, coatings, and specialty materials.
Heejung
3rd year MechE/PPSM
Prof. Aristide Gumyusenge’s group (DMSE)

“What I like about MIT Polymer Day is that it gives you the opportunity to meet people from both industry and academia, who work in the field of polymers and soft matter. The poster session is also a great opportunity to learn about your peers' research at MIT and at other institutions. Especially, when the research overlaps your interests and own research, it’s fascinating to learn from others' approaches and points of view.”

Avni
3rd year DMSE/PPSM
Prof. Rafael Gomez-Bombarelli’s group (DMSE)

“Polymer Day is a great opportunity to share your research with others interested in polymers, network with industry representatives, and to connect with the wider polymer science community!”

“PGSA aims to build a community in PPSM and to support you throughout your time in the program, whether that be through holding coffee hours, running quals prep, or organizing events like Polymer Day. Always feel free to reach out to your PGSA officers with thoughts, ideas, questions, or concerns!”
The PPSM Graduate Student Association (PGSA) organizes social and academic events, helps to maintain PPSM's website, and provides an important channel of communication between PPSM students and faculty.

PGSA annually plans and produces MIT’s flagship event for polymer researchers from MIT and beyond. This event includes a poster session, presentations, and workshops with the goal of fostering the polymer community in the Boston area, while also inviting anyone interested in polymers, from anywhere.

In addition, PGSA plays an important role in helping first-year students along their academic path. Notably, the academic chairs organize Quals Training Sessions in the months before the first year PPSM Qualifying Exams to help better prepare the students for the exams.

Several events are organized by PGSA to foster a community within PPPSM. For instance, PGSA Coffee Hours are usually held once a month and are a great opportunity for PPSM first-year students to meet upper-years students. Off-campus outings, like bowling, dinner, sailing, picnics, day trips, etc., are also organized during the year. Stay tuned for the upcoming ones!
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2022-2023

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Do I need to have a strong polymer background to join PPSM?

No, but a strong interest in the polymer field is important. As an interdisciplinary program, most of its entering students have backgrounds in much of the underlying foundational material, but not necessarily any extensive experience in polymers specifically. The core curriculum is designed to accommodate this diversity of backgrounds, and provides a thorough yet accessible introduction to the field.

Is PPSM its own department?

No. PPSM is an interdepartmental program, so each PPSM student has a home department (the participating department that admitted the student to graduate study at MIT). While all five of the participating departments accept the PPSM graduate core curriculum and doctoral quals in place of the equivalent departmental offerings, each department has a graduate office that sets rules and guidelines for its graduate students, including those who are participating in PPSM. These guidelines include thesis committee composition and frequency of meetings, minor subject requirements, arrangements for co-advising, teaching assistant responsibilities and others. PPSM students are expected to fulfill the requirements of the home department in every case. PPSM students end up being well versed in both their traditional disciplinary field and in polymer science; this is a significant asset in the current interdisciplinary research and development environment.

Which MIT faculty member can serve as my thesis research advisor?

If agreeable to the home department, any MIT faculty member can serve as a thesis advisor regardless of their affiliation with PPSM. PPSM Faculty and Faculty Affiliates provides a listing of MIT faculty that are actively involved in PPSM and/or polymer research. Co-advising of students across departmental boundaries is encouraged and is common practice for PPSM research. Updates on the availability of research support and on the latest thesis topics being offered are obtained by direct contact with the faculty.
Are PPSM students required to have a PPSM Faculty member on their Thesis Committees?

No–PPSM does not have a fixed policy on the composition of thesis committees. Instead, PPSM students are expected to follow the guidelines of their home departments. Please contact the Academic Administrator for your department with questions about Thesis Committee procedures and regulations.

Will my PhD degree designation be in my home department or PPSM?

PPSM students have the option of having their PhD degree designation be either PPSM or their home department. For example, a DMSE/PPSM student can have a “Ph.D. in Materials Science and Engineering with an Emphasis in Polymers and Soft Matter” OR “Ph.D. in Polymers and Soft Matter with an Emphasis in Materials Science and Engineering.”

How should I study for the PPSM qualification exams?

The best ways to prepare for your qualification exams are 1) reviewing your course notes, handouts, and problem sets, 2) reading the recommended textbooks listed in this handbook, and 3) practicing solving problems from past qualification exams on a whiteboard in front of your peers. Around Spring break, the PGSA Academic Chairs will organize an event to chat and answer questions about the qualification exams, and afterwards will hold weekly sessions for PPSM students to practice answering questions in a format similar to the exam setting.