

MACRO Report. Fall 2022

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Overview

We are developing a platform that supports 3 distinct areas. Curriculum, Professional Development, Outreach.

We also post scientific resources available to researchers

Key activities:

Website: The MACRO website is launched and live. We received 4839 views and 2834 visitors in 2021. To date we have received 2974 views and 1800 visitors in 2022. This shows that our website is reaching people.

<https://macro-poly-pmse.org/>

The website provides resources on all 3 areas. New content has been added to the website. See below. Additionally live events are being organized as part of MACRO.

Curriculum. We now have resources on the MACRO webpage on general polymer topics, acyl substitution, stereochemistry, alkene chemistry.

Recent activities

-Updated organic chemistry materials. Acyl substitution, alkenes and stereochemistry have all been updated.

New modules developed including

- Polymer characterization by NMR
- DLS and GPC basics
- Molecular weight definitions
- Molecular weight determination
- Fundamentals of rheology

We also are making videos of polymer materials and applications to share with the community as a whole. These will be accessible short videos.

Professional development (PD). The goal of MACRO's PD activities are to provide resources (currently) and eventually materials to people interested in polymer science at various stages of their career. We have published resources on the MACRO website for undergraduates seeking further graduate study in polymers. We plan to expand these resources over the next 3-5 year to address all stages of career development including graduate students, industry and early career scientists.

Recent publications through the website.

First Six Months at Your New Industry Job (with Mahdura Pade)

<https://macro-poly-pmse.org/first-six-months-at-your-new-industry-job/>

Starting your Academic Research Group

<https://macro-poly-pmse.org/professional-development/starting-your-academic-research-group/>

We also held a live Careers after Graduate Studies Panel on April 8 2022. Dominik Konkolewicz and Bhavya Singhi comoderated We had over 40 students and 6 panelists (Liz Sterner (LVC), Keisha Ross (Avery Dennison), Michael Allegrezza(Cytosorbents), Marissa Wechsler (UT SA),Tristan Clemons (USM), Megan Hill (MIT/CSU)) through Zoom.

An upcoming panel is scheduled for August 31 2022 on the topic of Burnout and managing stress in graduate studies.

This type of live interactive web panel/webinar format is where MACRO envisages significant effort

Outreach. We have created a depository of outreach materials for individuals to be able to spread their passion and knowledge of science to the general population. MACRO just launched an interface where individuals can share what they are currently utilizing in their communities and receive appropriate recognition for their contributions to the Polymer community.

Scientific Resources

We have also added scientific resources that researchers can access and use to facilitate their own polymer analyses. Recently added resources are

Molar Mass Between Crosslinks

<https://macro-poly-pmse.org/scientific-resources/molar-mass-between-crosslinks/>

Models for the Ideal Distribution of Polymers

<https://macro-poly-pmse.org/scientific-resources/models-for-the-ideal-distribution-of-polymers-made-with-reversible-deactivation/>

Tensile Stress Strain Curves Models

<https://macro-poly-pmse.org/scientific-resources/tensile-stress-strain-curves-models-mixed-linkers/>

Planned Activities for Upcoming Year.

Curriculum- New lecture content is planned for the next 12 months.

Immediate next steps:

- Prepare videos from the synthesis slides.
- Post the finalized NMR and molecular weight modules.

Longer-term next steps:

- Branching out into physical chemistry modules with Yoan Simon and Dan Savin.
- Synthesis modules for living polymerizations.

Professional Development- We will aim to develop content for early career researchers. Likely first contribution will be on networking and how ACS can be a part of it, especially outside the national meetings.

Will host live panels for Grad school applicants and REU students in Nov 2022. This is in addition to the panel on Burnout in August.

Outreach- Engage committee members to develop clear descriptions of new outreach activities. We plan to expand the repository of listed polymer and general scientific demonstrations.