Subcommittee on Polymer Terminology (SPT)

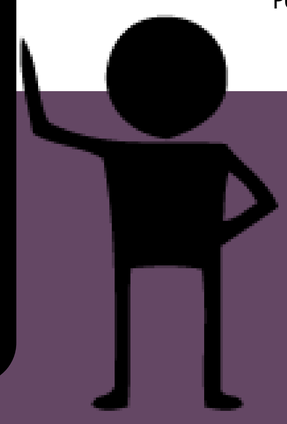
Basic Classification and Definitions of Polymerization Reactions

Chin Han Chan, Jiun-Tai Chen, Wesley S. Farrell, Christopher M. Fellows, Daniel J. Keddie, Christine K. Luscombe, Jan Merna, Graeme Moad, Gregory T. Russell, Patrick Théato, Paul D. Topham, Lydia Sosa Vargas

PROJECT: 2019-027-1-400

PROJECT CHAIR : John Matson

INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY



Can we come up with clearer & more self-consistent terminology ?

Before proposing new terms, the project members reached out to the Polymer community via a "dilemma document" in Polymer Chemistry (RSC journal) with the intention to outline the problem in the terminology used.

Article's « ALTMETRIC attention score »

Reconsidering terms for mechanisms of polymer growth: the "step-growth" and "chain-growth" dilemma

Check for updates

Chin Han Chan, [a] Jiun-Tai Chen, [b] Wesley S. Farrell, [c] Christopher M. Fellows, [de] Daniel J. Keddie, [f] Christine K. Luscombe, [g] John B. Matson, [*h] Jan Merna, [i] Graeme Moad, [j] Gregory T. Russell, [k] Patrick Théato, [*l] Paul D. Topham [m] and Lydia Sosa Vargas [n]

"The authors of this work, who are all members of the Subcommittee on Polymer Terminology in the Polymer Division of the International Union of Pure and Applied Chemistry (IUPAC), have done a wonderful job looking into this dilemma and have clearly described their findings.

I commend them for addressing this issue and thank them for bringing it to the attention of the community."

Editorial
Marc A. Hillmyer

Macromolecules 2022, 55, 11, 4175–4176

In this Perspective article, the goal was also to seek suggestions from the community on how to provide clear, simple, and consistent terms.

- Historical overview of terminology
- Study of terms in textbooks
- Language/translation issues
- Other exceptions (polymerisation mechanisms

This article is part of the themed collections:

- Chemistry of polymers - Chemical Science symposium collection
- Polymer Chemistry Recent HOT Articles
- Polymer Chemistry Most Popular 2022

The terms are confusing as they **don't** describe the **fundamental differences** in the growth of polymers.

SPT/IUPAC have **never** actually endorsed the terms "step-growth" and "chain-growth."

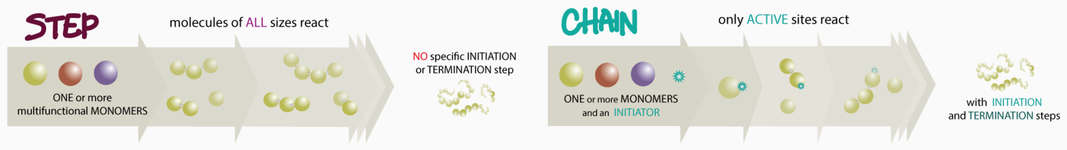
The project (and article) was also presented at the MACRO 22 conference in Winnipeg by project chair **John Matson**.

The talk's slides were made available for other SPT members to present in future occasions, like:

Jan Merna , at the 2023 Colloquium of the Institute of Macromolecular chemistry, University of Chemistry and Technology, in Prague; and **Greg Russell,** in his 3rd year UG Chemistry course at the University of Canterbury.

PROJECT AIM

The terms "step-growth polymerization" and "chain-growth polymerization" are used widely to describe the two main polymerization mechanisms. However, both mechanisms require series of (elementary) steps AND both produce polymer chains!

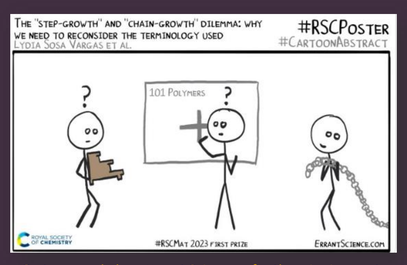


This project aims to update the 1994 BASIC CLASSIFICATION AND DEFINITIONS OF POLYMERIZATION REACTIONS* document to address these concerns in the context of existing trends in polymer synthesis.

The SPT at the #RSC Poster competition

The RSC poster event was held on the Twitter platform on **February 28th** and lasted 24 hrs. During this time, the community interacted through messages to **discuss** the content, **ask** questions, **make** suggestions, etc.

Engagement with the chemistry community was quite successful, *(>20,000 impressions, >1000 engagements, >100♥, >30 retweets)* bringing more visibility to the article and relaunching the discussion.



Cartoon made by « Errant Science » for the winning posters

The poster was awarded the 1st prize for the Materials category.