NUMTA 2023 Special Session on

Computational aspects of dynamic geometry and applications

Given a fixed geometric configuration and a given sequence of transformations, one can define a dynamic geometry as the iterative process described by the configurations obtained after successive steps. The initial configuration can be any general pattern defined using polygons, circles, or associated geometric elements. Particularly interesting dynamics are obtained for patterns in the complex plane, and for iterations involving complex parameters.

Some concrete problems arising in the study of a dynamic geometry include:

1. describe the n-step configuration and its geometric elements;
2. investigate the convergence of the sequence;
3. study the convergence in shape of the sequence;
4. if convergent, identify the limit of the sequence and find the convergence order;
5. obtain properties of the initial configuration from the pattern after a number of steps.
6. describe the fixed or stable elements of the process.

The session invites contributions related to the broad subject of dynamic geometry, including:

- recurrent patterns;
- fractals;
- polynomiography;
- difference equations;
- fixed point theory;
- iterative geometrical processes;
- iterative methods in optimization;
- image processing.

Special Session Organizers:

Dorin Andrica, Babeș-Bolyai University, dandrica (at) math.ubbcluj.ro

Ovidiu Bagdasar, University of Derby, o.bagdasar (at) derby.ac.uk