FINAL PROJECT TOPICS
SPRING 2020

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* In the following there is a list of suggested topics relevant to our course. Select one of your favorite topics and complete a background search on it. (If your topic is not from the list, you should let me know in advance.) You may focus on one of the following aspects:

- How was the result discovered?
- What directions of research did the result lead to?
- What is the current status regarding the development of the result?

Your final project is to complete a survey article on your chosen topic, typically of 10–15 pages. You are required confirm your topic by **May 21, 2020**, and submit your final report by **June 14, 2020**.

List of suggested topics:

- Generalization of hyperbolic Dehn filling theorem
- Hyperbolic 3-manifold of the smallest volume
- Computation of hyperbolic volume
- Generalization of the Mostow rigidity
- Gromov norm of manifolds
- Quasi-Fuchsian groups
- Character varieties of 3–manifold groups
- Criteria of discreteness

Narrow your topic down before you start writing. For example, to survey on the topic "generalization of hyperbolic Dehn filling theorem", you may focus on the generalizations to compact 3-manifolds with higher genus boundary, or to higher-dimensional hyperbolic manifolds, or to word-hyperbolic or relatively hyperbolic groups in geometric group theory, etc. In your report, you may explain the contents of some important results, review the development of relevant theories, discuss open questions and attempts toward them, and/or illustrate some key ideas with examples or special cases.