1163-AI-1084 **Beth Malmskog*** (bmalmskog@coloradocollege.edu), **Kathryn Haymaker** and **Gretchen Matthews**. *Locally Recoverable Codes with Many Recovery Sets from Number Theory and Geometry.*

Error correcting codes are systems for incorporating redundancy into stored or transmitted data, so that errors can be identified and even corrected. A good error correcting code is efficient and can correct many errors relative to its efficiency. These codes are ubiquitous in the digital age, and many excellent codes arise from algebraic constructions. The increasing importance of cloud computing and storage has created a need for codes that protect against server failure in large computing facilities. One way of approaching this problem is to ask for local recovery. An error correcting code is said to be locally recoverable if any symbol in a code word can be recovered by accessing a subset of the other symbols. This subset is known as the helper or recovery set for the given symbol. It may be desirable to have many disjoint recovery sets for each symbol, in case of multiple server failures or to provide many options for recovery. This talk describes how geometry and number theory can be powerful tools for creating such codes, including a construction using fiber products of curves to generate arbitrarily many recovery sets. (Received September 14, 2020)