1086-12-2653          **Eric W Weisstein\*** (`eww@wolfram.com`), 100 Trade Centre Dr, Champaign, IL 61820, and
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*Encoding Continued Fraction Knowledge in Computational Form.* Preliminary report.

In this talk, we report progress toward collecting, semantically encoding, and exposing significant published results on continued fractions from the historical mathematical corpus as a digital library. This work, supported by the Sloan Foundation, extends the framework developed for the Wolfram—Alpha website to create a new type of free digital archive for mathematical data that will both ensure preservation and promote dissemination of a targeted segment of mathematical knowledge for the public good. Continued fractions are an ideal subject for this proof-of-concept as they constitute a subset of mathematics that is historically rich, well-defined, and nontrivial, yet at the same time manageable in scope. Work completed so far includes a nearly exhaustive collection of named and unnamed continued fraction identities, a normalized bibliographic database of $\sim 500$ relevant books and articles, and an initial collection of $\sim 100$ hand-curated theorems and results. All of these entities can be queried using a natural language syntax and provide additional linking and cross-entity entraining. In addition, many offer both visualizations and traditionally typeset versions, thus combining familiar traditional mathematical markup with modern tools for computational exploration. (Received September 25, 2012)