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James R Langenbrunner* (jr1@lanl.gov), MS F644, XCP-8, Los Alamos National Laboratory, Los Alamos, NM 87545, and **Jane M Booker** and **Hanna E Makaruk** (hanna_m@lanl.gov), MS T080, P-21, Los Alamos National Laboratory, Los Alamos, NM 87545. *Inferring fusion temperature and ion velocity distributions using gamma flux, recent progress.* Preliminary report.

Deuterium-tritium (D-T) and deuterium-deuterium (D-D) fusion reaction rates are observable using gamma flux. A direct measurement of g-rays with equipment that exhibits fast temporal response could be used to infer temperature, if the detector signal is amenable for taking the logarithmic time-derivative, alpha. We consider the temperature dependence for fusion cross section reactivity and the role of assumptions commonly used for the ion velocity distribution. (Received February 07, 2018)