**Platform:** Both Lander and Rover

Science:
- Constrain formation and differentiation models
- Inform the thermal and chemical evolution of the lunar mantle and primary lunar crust
- Determine both the volatile content in the lunar interior and the volatile distribution in and around polar PSRs
- Provide local geochemical context for returned samples from the South Pole Aitken Basin

Objectives:
- Take individual BECA components (Pulsed Neutron Generator, Gamma ray Spectrometer, Neutron Detectors and associated electronics) to TRL 6
- Integrate components into BECA system
- Bring BECA system to TRL 6 with operational tests in both static lander and rover configurations at the Goddard Gamma ray Neutron Test Facility

CoIs: Timothy McClanahan, Richard Starr / NASA Goddard Space Flight Center; David Lawrence, Patrick Peplowski, and Robert Bamberger / Johns Hopkins University Applied Physics Laboratory; Luke Perkins / Schlumberger Technology Corporation
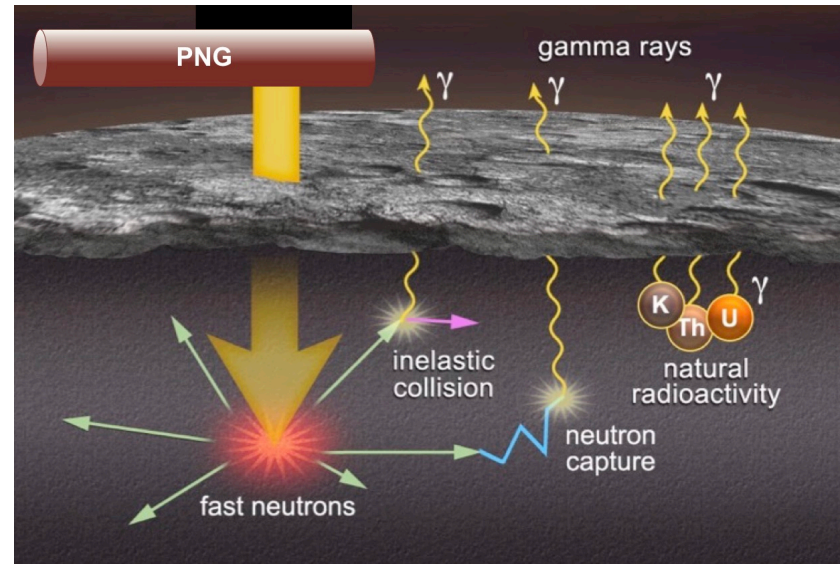
BECA's pulsed neutron generator (PNG) sends high energy (fast) neutrons beneath the lunar surface where they produce gamma rays that are measured by BECA's gamma ray spectrometer (GRS) to determine the bulk subsurface elemental composition of the Moon.

Key Milestones:

- Production and Testing of DPU Electronics   8/2019
            PNG Controller Electronics   4/2020
- Production of Low Mass, Low Power PNG   7/2020
- Integration and Test of BECA System   11/2020
- BECA Static Lander Tests   2/2021
- BECA Environmental Tests   4/2021
- BECA Rover Tests   9/2021
- Quick Turn-Around Analysis Software   10/2021

TRL 4 to 6