



Contribution ID: 67

Type: **Oral**

## Nuclear fusion reaction cycles: new prospects

*Monday, 26 February 2024 16:00 (20 minutes)*

Nuclear fusion reaction cycles involving solid room temperature lithium-6 deuteride ( ${}^6\text{LiD}$ ) hit with beams of neutrons are revisited with new calculations of the time evolution of a network of differential equations for the abundances of various nuclear species. Modern-day compilations of nuclear cross-sections and non-thermal reaction rates are used to predict the full time evolution of the main thermonuclear reactions, namely the Jetter ( $n+{}^6\text{Li}$ ) and Post cycles ( $p+{}^6\text{Li}$ ), that offer great prospects for energy production in devices not based on plasma confinement. We investigate burning conditions and we find interestingly high yields for the burning of the fuel material into alpha particles.

**Primary author:** FORTUNATO, Lorenzo (Istituto Nazionale di Fisica Nucleare)

**Presenter:** FORTUNATO, Lorenzo (Istituto Nazionale di Fisica Nucleare)

**Session Classification:** Nuclear Structure and Reactions I