Contribution ID: **236** Type: **Lecture**

Public Talk per internet by Prof. Johann Rafelski - ”Searching for Viable Paths to Nuclear Fusion Energy”

Thursday 8 September 2022 19:00 (1 hour)

Nuclear fusion energy powers the Sun. The objective of harnessing this seemingly abundant potentially non-radioactive source of energy on Earth has a widespread interest. I will discuss: Nuclear fusion in stars and in the Universe; conventional approaches to realize it on Earth including the ITER experimental plasma reactor under construction, and the very big inertial confinement laser at NIF. However, these large efforts require tritium: The unstable tritium fuel generates lethal weapon-grade neutrons and needs to be artificially created. I will refocus attention and discuss the pros and cons of three modern fusion paths operating outside of thermal equilibrium constraints: Muon catalyzed nuclear fusion; Laser-driven proton acceleration used to spark micro-explosion fusion; and laser-driven coherent plasmon field-induced fusion. The last two approaches are relying on alternative light element fuels available for mining and are operating in an aneutronic manner.

Internet talk

Details

Is the speaker for that presentation defined?

Name of experiment and experimental site

Is this abstract from experiment?

Presenter: RAFELSKI, Johann (University of Arizona)