Canadian Association of Physicists
Association canadienne des physiciens et physiciennes

Contribution ID: **2715** Type: **Invited Speaker / Conférencier(ère) invité(e)**

General Fusion's Approach to Magnetized Target Fusion

Tuesday, 4 June 2019 13:15 (30 minutes)

While many physicists agree that fusion energy has the potential to be an exceptional solution to the world's energy challenges, few can agree on how and when it will be done. Historically, two main approaches to develop fusion energy have been pursued by academic research: magnetic confinement and inertial confinement. Over the years significant progress has been made, but fusion power plants based on these two methods are still a ways away. Magnetic confinement operates with a plasma density of 1020 ions/m3 for time in seconds. Inertial confinement plasmas have a density of 1032 ions/m3 for a duration of 10's of ps. Encouraged by advancing plasma physics and supporting technologies, interest in new approaches between these two extremes has emerged. Called Magnetized Target Fusion (MTF) or Magneto-Inertial Fusion (MIF), these new approaches are in between the traditional ones, using compression (like inertial confinement) of a magnetized plasma (like magnetic confinement) to achieve fusion conditions. Some argue that MTF could lead to practical fusion energy faster and for less money than the more traditional approaches. In recent years, the potential timeline and lower cost of fusion energy has resulted in many new companies entering the field with various approaches to fusion. After an overview of the fusion energy field, General Fusion's MTF approach will be discussed.

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Session Classification: T3-2 Novel Magnetic Fusion Configurations (DPP) | Nouvelles configurations de fusion magnétique (DPP)

Track Classification: Symposia Day - Plasma Physics