

## **Lawson Machine 26: An Update on Recent Magnetized Target Fusion Compression Results**

**Myles Hildebrand, General Fusion**

General Fusion is pursuing a practical path to bringing fusion energy to market using its Magnetized Target Fusion (MTF) technology. This approach to MTF is characterized by using a liquid metal liner to rapidly compress a magnetized plasma on a time scale faster than its thermal energy confinement time, thereby heating the plasma and increasing its density until fusion conditions are obtained. General Fusion is fast-tracking its technical progress to provide commercial fusion energy to the grid by the 2030s by building a new MTF fusion machine in Vancouver. The machine, called Lawson Machine 26 “LM26” is designed to achieve fusion conditions of over 100 million degrees Celsius (10 keV) via compressional heating by 2025, with a further goal of achieving the Lawson criterion where the product of density, temperature, and energy confinement time ( $nT\tau$ ) exceeds  $1e21 \text{ m}^{-3}\text{keVs}$  in 2026.

The first stage of LM26 is now operational, with compression experiments beginning in early 2025. LM26 is running with deuterium fuel and is a 50% scale plasma of a commercial fusion machine. Although the commercial compression solution remains liquid metal, LM26 is using an electromagnetic theta-pinch to implode a solid lithium liner as the method of plasma compression. Initial results from solid wall MTF experiments will be shared. This will include experimental measurements from both plasma and solid liner position diagnostics. Both magnetohydrodynamic and solid mechanic simulations will be shown and compared to experimental results. Planned upgrades to the machine to achieve further milestones will be outlined.