The first successful laser floating-zone growth of boron carbide ("B₄C") was carried out at PARADIM.

B₄C is extremely hard, has $T_{\text{melt}} > 2000 \, ^\circ\text{C}$, and harbors a rich array of electronic properties that vary with composition.

In situ monitoring of gas-phase species during growth allowed the underlying mechanisms by which the composition changes to be identified; this understanding enabled the successful growth of boron carbide single crystals with controlled stoichiometry. This newfound control over electronic properties in boron carbide is expected to enable new energy capture and detection technologies in radiation hard environments.

Other User Success Stories:
- New family of thermoelectrics
- New electron emitter
- New multiferroic
- New Ruddlesden-Popper phase $(A_{n+1}B_nO_{3n+1})$ with high $n$