

Probing extreme physics with plasma accelerators

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Plasma based particle accelerators driven by high intensity lasers are well suited as probes of extreme conditions. They are sources of electron, X-ray and gamma-ray beams with unique properties and, crucially, are readily synchronised with laser driven experiments which re-create extreme conditions usually only found in astrophysical environments.

This talk will describe the key properties that make laser wakefield accelerators powerful tools for discovery, and highlight three areas where we are making progress in the study of extreme conditions: extreme electromagnetic fields, extreme temperatures and photon-photon physics.