**Andre Giordimaina**

Academic supervisors: Nick Lavery & Steve Brown

Industrial Supervisor: Chris Sutcliffe

Sponsoring Company: Renishaw

Selective laser melting is a form of powder bed additive manufacturing. A laser is used to melt a thin layer of metal powder, and another layer is deposited over the previous solidified layer. The process is repeated until a 3D component is formed. A series of experiments were devised to investigate the influence of laser power and scanning speed on the formation and surface properties of the melt pool. The properties of a single layer or single track influence the mechanical properties of the entire component, and thus it is important to develop an understanding of the phenomena involved.

