

**School of Mathematics and Applied Statistics**  
**2014 Colloquium Series**

**Title:** Einstein's special relativity beyond the speed of light

**Speaker:** James M. Hill (University of Adeliade)

**Time and Date:** 3:30pm, Friday, 21 March 2014

**Location:** 32-G01

**Abstract:** We derive extended Lorentz transformations between inertial frames for relative velocities greater than the speed of light, and which are complementary to the Lorentz transformation giving rise to the Einstein special theory of relativity. The new transformations arise from the same mathematical framework as the Lorentz transformation, displaying singular behaviour when the relative velocity approaches the speed of light and generating the same addition law for velocities, but most importantly, do not involve the need to introduce imaginary masses or complicated physics to provide well-defined expressions.