



High Speed Ice Friction

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Many different tribological experiments have been run to determine the frictional behaviour of ice at high speeds, ostensibly with the intention of applying results to everyday fields such as winter tyres and sports. However, experiments have only been conducted up to linear speeds of several metres a second, with few additional subject specific studies reaching speeds comparable to these applications.

Experiments were conducted in the cold rooms of the Rock and Ice Physics Laboratory, UCL, on a custom built rotational tribometer based on previous literature designs. Preliminary results from experiments run at 2m/s for ice temperatures of 271 and 263K indicate that colder ice has a higher coefficient of friction, in accordance with the literature.

These results will be presented, along with data from further experiments conducted at temperatures between 259-273K (in order to cover a wide range of the temperature dependent behaviour of ice) and speeds of 2-15m/s to produce a temperature-velocity-friction map for ice. The effect of temperature, speed and slider geometry on the deformation of ice will also be investigated. These speeds are approaching those exhibited by sports such as the luge (where athletes slide downhill on an icy track), placing the tribological work in context.