Wheel squeal is a loud, tonal noise generated when a train negotiates the curve of a rail. Previous field tests and laboratory tests found that the sound pressure level of squeal noise increases with angle of attack and rolling speed. Also, it was found that the probability of squeal increases with relative humidity and that the wheel squeal still exists after the application of friction modifiers. These phenomena, however, have not been explained in terms of the generation mechanism of wheel squeal.

In his presentation, Xiaogang will introduce some substantial contributions of his research to the existing literature.

Firstly, the mechanisms that cause the sound pressure levels of wheel squeal to increase with angle of attack and rolling speed are illustrated theoretically.

Simulation results of wheel vibrations at various angles of attack and rolling speeds, the effect of negative damping on squeal occurrence and the integration between the friction-creepage curve and wheel vibration will also be presented along with the novel experimental investigations which include the developments of new methods to measure contact forces and angle of attack and other laboratory investigations.

Xiaogang Liu is a PhD student started in 2009 under supervision of A/ Prof. Meehan and Prof. Mee. He has obtained a Master’s degree from Northeastern University in China majoring in Mechanical Engineering.

When
Friday, 26th July 2013, 3-4pm

Where
50-N202
Hawken Engineering Building, St Lucia

School of Mechanical and Mining Engineering

All interested persons are invited to attend
The seminar is free of charge – no RSVP is needed
Enquiries – Phone 3365 3714