

Suresh Mavila Chathoth ¹, Changjiu Chen ¹, and Dehong Yu ²

¹*City University of Hong Kong, Hong Kong*

²*ANSTO, Australia*

The logarithmic relaxation process is the slowest of all relaxation processes and is exhibited by only a few molecular liquids and proteins. Bulk salol, which is a glass-forming liquid, is known to exhibit logarithmic decay of intermediate scattering function for the β -relaxation process. Here, we report the influence of nanoscale confinements on the logarithmic relaxation process and changes in the microscopic glass-transition temperature of salol in the carbon and silica nanopores. The generalized vibrational density-of-states of the confined salol indicates that the interaction of salol with ordered nanoporous carbon is hydrophilic in nature whereas the interaction with silica surfaces is more hydrophobic. The mode-coupling theory critical temperature derived from the QENS data shows that the dynamic transition occurs at much lower temperature in the carbon pores than in silica pores. The *results* of this study indicate that, under nano-confinements, liquids that display logarithmic β -relaxation phenomenon undergo a unique glass transition process.