

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE  
2A&B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

## Seminar Notice

Org. by

### Theoretical Physics Department

<b>Title:</b>	<b>Dark neutrino interactions make gravitational waves blue</b>
<b>Speaker:</b>	<b>Subhajit Ghosh, Department of Theoretical Physics, TIFR, Mumbai</b>
<b>Date:</b>	<b>March 12, 2018 (Monday)</b>
<b>Time:</b>	<b>3:00 p.m.</b>
<b>Venue:</b>	<b>Theoretical Physics Seminar Room (C406), 3rd Floor, Centenary Building, IACS</b>
<b>Abstract:</b>	<p>New interactions of neutrinos can stop them from free streaming in the early Universe even after the weak decoupling epoch. This results in the enhancement of the primordial gravitational wave amplitude on small scales compared to the standard <math>\Lambda</math>CDM prediction. We calculate the effect of dark matter neutrino interactions in CMB tensor <math>B</math>-modes spectrum. We show that the effect of new neutrino interactions generates a scale or <math>\ell</math> dependent imprint in the CMB <math>B</math>-modes power spectrum at <math>\ell \gtrsim 100</math>. In the event that primordial <math>B</math>-modes are detected by future experiments, a departure from scale invariance, with a blue spectrum, may not necessarily mean failure of simple inflationary models but instead may be a sign of non-standard interactions of relativistic particles. There is rich information hidden in the CMB <math>B</math>-modes spectrum beyond just the tensor to scalar ratio.</p>

All are cordially invited to attend the seminar