

**Bollettino Settimanale**

Lunedì 9 luglio 2018	Martedì 10 luglio 2018	Mercoledì 11 luglio 2018	Giovedì 12 luglio 2018	Venerdì 13 luglio 2018
<p><b>AULA CONVERSI ORE 14.30 SEMINARIO TEORICO</b></p> <p><b>The entropic c-theorems and the vacuum Modular Hamiltonian and entropies for regions with arbitrary boundary on the light-cone</b></p> <p><i>Eduardo Testa Lino</i> (<i>Instituto Balseiro, Bariloche / University of California Santa Barbara</i>)</p> <p>I will present the explicit expressions for the vacuum Modular Hamiltonian and Rényi / von Neumann entropies for spacetime regions with arbitrary boundary on the light-cone. For these regions, it is shown the vacuum of any CFT saturates the strong subadditivity inequality (Markov property of the vacuum). This is the key ingredient to extend the entropic proof of the c theorems in two and three dimensions to the case of four dimensions (A-theorem). I will show the main ideas and tools used in these proofs.</p>		<p><b>AULA CONVERSI ORE 16.00 SEMINARIO DI ASTROFISICA</b></p> <p><b>The formation of First Stars and First Supermassive Black Holes in the Universe</b></p> <p><i>Kazuyuki Omukai</i> (<i>Tohoku University</i>)</p> <p>The high masses and early formation epochs of the first stars make their black hole remnants the natural candidates for being the seeds of supermassive black holes (SMBHs). Alternatively, the so-called direct collapse scenario for SMBH seed formation has been proposed. In this talk, I will first present the physical processes governing the formation of supermassive stars and their collapse into intermediate-mass black holes. I will then discuss the efficiency of the subsequent BH mass growth by accretion in early galaxies.</p>		