



University of Camerino  
**School of Science and Technology**  
Scientific event 2019

## **Astrophysical consequences of white dwarf stars**

**Prof. Kuantay Boshkayev**  
*Almaty University, Kazakhstan*

**Abstract:** In this talk I will review our main results on white dwarfs. I will mainly focus on the equations of state, the effects of rotation, temperature, chemical composition of the white dwarf matter. In addition, the spin up and spin down effects, delayed supernova explosion/gravitational collapse and the white dwarf model of magnetars will be considered.

The spin up and spin down effects are due to the angular momentum loss via magnetic dipole braking mechanism. It is shown that white dwarfs possessing masses larger than the Chandrasekhar mass limit will always spin up whereas the low mass white dwarfs will always spin down.

The delayed supernova explosion/gravitational collapse is related to the fact that rotating white dwarfs due to the centrifugal forces may have larger mass than the Chandrasekhar mass limit and smaller central density/pressure than the carbon burning and inverse beta decay thresholds.

The white dwarf model of magnetars is associated with the fact that the magnetic field strength/intensity of magnetars are not directly measured from observations, but inferred from the magnetic dipole braking expression employing the fiducial values for the mass and radius of neutron stars.

All relevant physical and astrophysical consequences will be discussed in detail.

**Room Tchoudinov (Room H) – Physics Building**  
**Tuesday July 23th, 2019, 15.00**

**Coordinators: Prof. Roberto Giambò and Dr. Orlando Luongo**