



ul. Bartycka 18, 00-716 Warszawa
tel: (22) 841 00 41, (22) 3296 100
fax: (22) 841 00 46
email: camk@camk.edu.pl
<http://www.camk.edu.pl>

CENTRUM ASTRONOMICZNE IM. MIKOŁAJA KOPERNIKA PAN

Prof. dr hab. Ryszard Szczerba
Nicolaus Copernicus Astronomical Center
email: szczerba@ncac.torun.pl

Dust and gas: an introduction to infrared spectroscopy and the physics of circumstellar and interstellar medium: A monograph course in the spring term of 2016/2017.

Dust and gas (atomic/ionic/molecular) play a dominant role in the recycling of matter inside galaxies. Such gas and dust ejected by the mass-loss process, give an excellent opportunity for studying the physical and chemical processes in the circumstellar matter, which will later become interstellar matter. The circumstellar nebulae and interstellar medium are sites of molecular and solid-state (dust) synthesis. Atomic/ionic and molecular gas provide information on its chemical composition, kinematics and physical conditions inside nebulae. On the other hand dust plays an important role in dynamics of outflows, formation of molecules, and is responsible for interstellar extinction. In my lectures, I will present an overview on gas and dust physics, solid state and gas infrared spectroscopy, principles of radiative transfer, as well as on determination of physical conditions (density, temperature) in gaseous nebulae. The newest observatories, such as Spitzer, Herschel, ALMA and soon JWST, provide us with spectacular diagnostics of circumstellar/interstellar matter in the Milky Way, and also in other galaxies.

The first lecture will be given on March 7th (Tuesday) at 11:15 in the seminar room in CAMK /Torun, and will be transmitted to the small seminar room of CAMK in Warsaw.