



KONWERSATORIUM INSTYTUTU FIZYKI UMCS

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Szkoła Doktorska Nauk Ścisłych i Przyrodniczych UMCS

Numerical simulations of two-fluid waves

This talk focuses on the study of solar atmosphere heating and solar wind generation conundrums. An increase of the plasma temperature with height and a generation of plasma outflows are two of the most central and so far unsolved issues of heliophysics.

Obviously, wave processes play an important role in the energy transport and its release into the solar atmosphere. So far, they have been studied in the framework of single fluid models. However, as a result of the abundance of neutrals in the lower atmosphere layers, the interactions between ions and neutrals should be taken into account. Therefore, the two-fluid waves for ions (protons) and neutrals (hydrogen atoms) have the potential to deliver momentum and energy into the upper atmosphere layers.

The undertaken studies are based on numerical simulations of the two-fluid phenomena occurring in the solar atmosphere that is gravitationally stratified and magnetically structured. Using the JOANNA code we study the mechanisms of formation and evolution of various types of chromosphere plasma outflows and waves propagation.

Uprzejmie zapraszam wszystkich pracowników, doktorantów i studentów Instytutu Fizyki.

Prof. dr hab. Ryszard Zdyb
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