

## Two-fluid MHD Description of Jets from Accretion Disks of YSOs

*M. Gogilashvili, V. Loladze, N.L. Shatashvili, A.G. Tevzadze*

e-mail: [mariam.gogilashvili2013@ens.tsu.edu.ge](mailto:mariam.gogilashvili2013@ens.tsu.edu.ge)

<sup>a</sup> Department of Physics, Faculty of Exact and Natural Sciences, Javakishvili Tbilisi State University,  
Chavchavadze avenue 3, 0179, Georgia

Beltrami disk-jet model (Shatashvili & Yoshida 2011) is used to derive hydrodynamic models of the disk-jet structures in young stellar objects. The role of magnetic field and two-fluid effects is studied for the formation of disk-jet structure. The control parameter ranges are analyzed and illustrative figures are constructed.

Specific results include:

- Generalized equations in the two-fluid model are derived;
- Equations in the two-fluid model are derived for specific YSO phenomenology;
- The two-zoned model for the density is used to construct the self-similar solution;
- Conditions for the existence of collimated jets are found. The effect of magnetic field in the jet collimation is studied.

### References

[1] N. L. Shatashvili, Z. Yoshida, AIP Conf. proceedings **1392**, 73 (2011)