S001-17
A 会場 ：11/5　 AM1 （9:00-10:30）
09:25〜09:40

恒星風を伴う低質量星への星間降着流の三次元シミュレーション

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Three dimensional simulations of the interaction between interstellar accretion flow and stellar outflow

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Due to gravity, all celestial objects are subject to accretion of surrounding materials. On the other hand, most celestial objects form outflows using their gravity as an energy source. The coexistence of outflow and inflow is universal in various celestial bodies including blackholes. The simplest case of isotropic inflow and outflow solutions are the Bondi accretion and Parker wind solutions, which are known as spherically symmetric steady solutions, but they cannot coexist without singularities at a finite radius due to the nature of their solutions. Here, the interaction between the accretion inflow and the isotropic outflow with a three-dimensional hydrodynamic simulation is studied by three-dimensional hydrodynamic simulation. The figure shows the case when the isotropic outflow is far stronger than the accretion flow. The simulations of different sets of the relative strength between the outflow and inflow were performed. We explored how the isotropic outflow and the accretion inflow coexist and how they switch from one to the other.

重力によって，全ての天体は降着を伴う．一方で，ほとんどの天体はその重力をエネルギー源として，恒星風やジェットなどの流出流を形成する．流出と流入が共存する現象は様々な天体で普遍的である．最も単純な場合が球対称定常の解として知られているボンディ降着とパーカー風の解であるが，これらはその解の性質上共存できない．我々は，三次元の数値流体シミュレーションで降着流と等方的な流出流との相互作用を調べた．図は流出流が支配的であり，恒星圏が形成されている様子である．流出流と降着流の強度を帰ることでそれらがどのように共存し，どのようにして，それらが切り替わるのかを調べた．