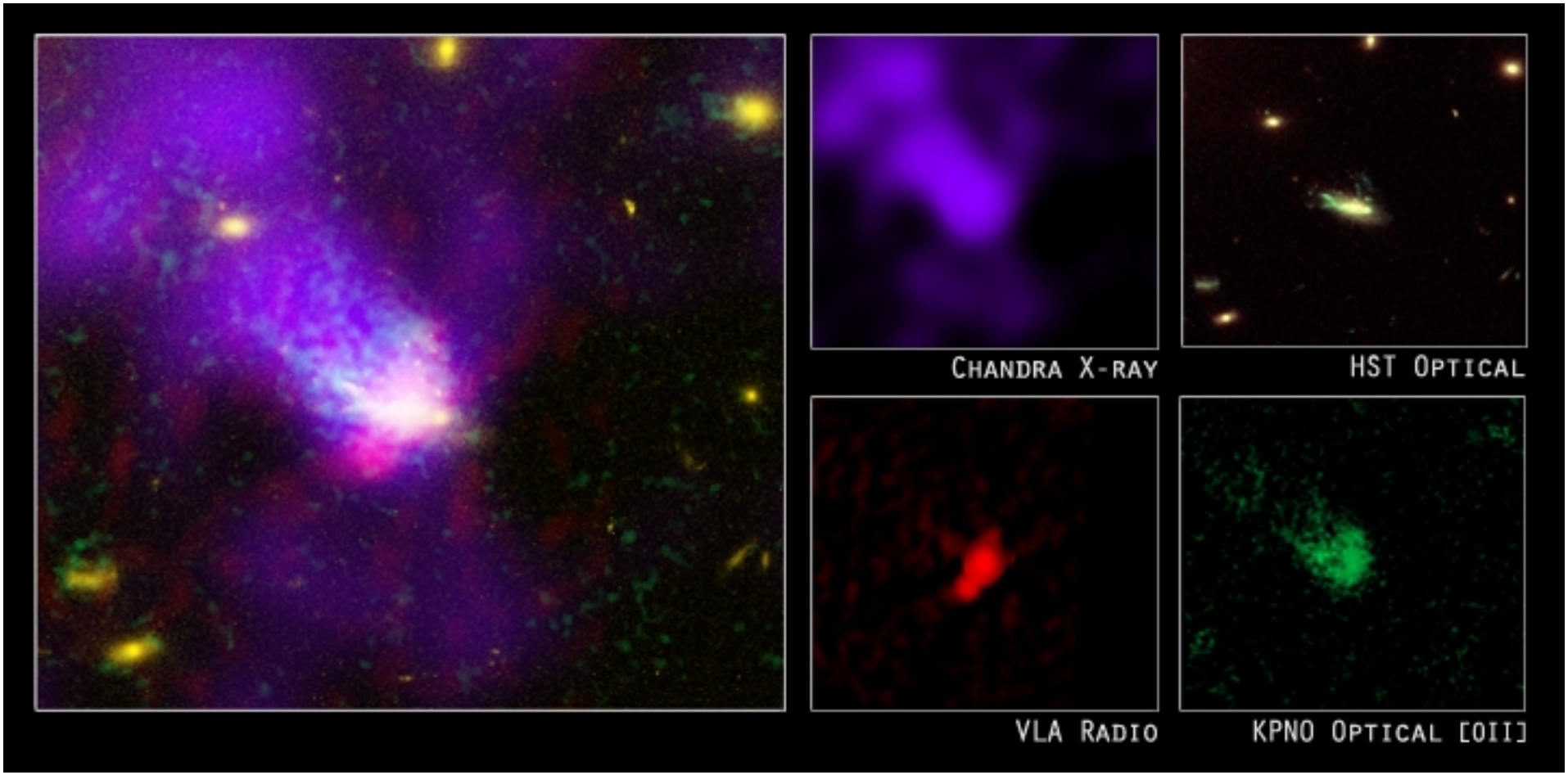
Hot gas around moving clusters of galaxies (Fukuda, N. & Asai, N.)

1. Comparison between MLW and Roe numerical method (Yeh, S.-J.)
2. Asymmetrical heat conduction due to the magnetic field (Miyake, S.)
3. Detailed Study on heat conduction and boundary (Kim, H.)
4. X-ray emissivity on Simulation (Cho, W.-K.)

Comparison between MLW and Roe numerical method

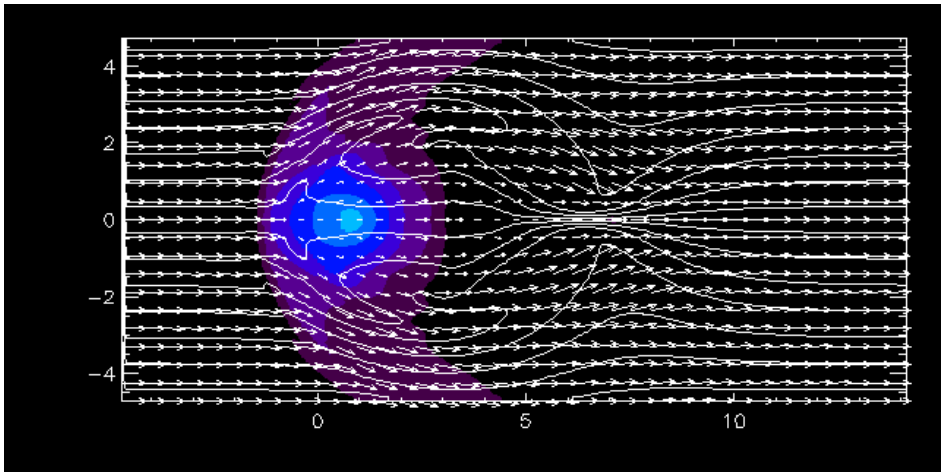
Sheng-Jen Yeh
(National Tsing Hua University
Institute of Astronomy and Astrophysics)

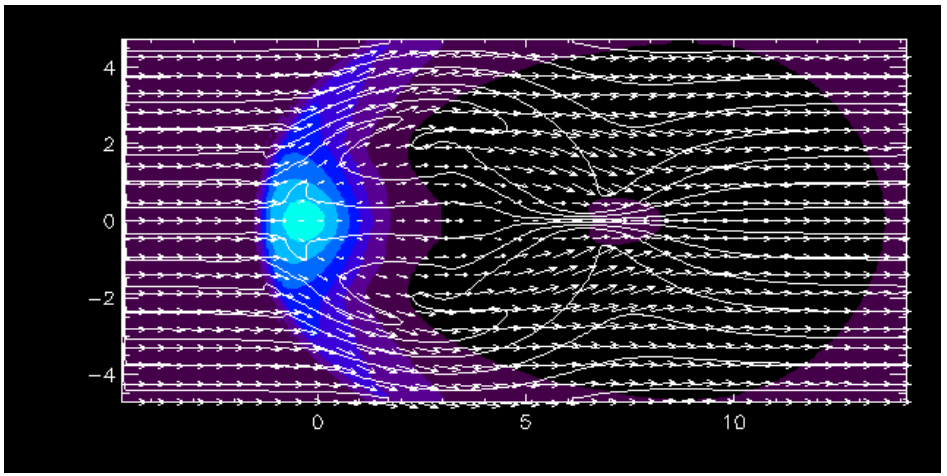
C153 in A2115 by Chandra x-ray observatory



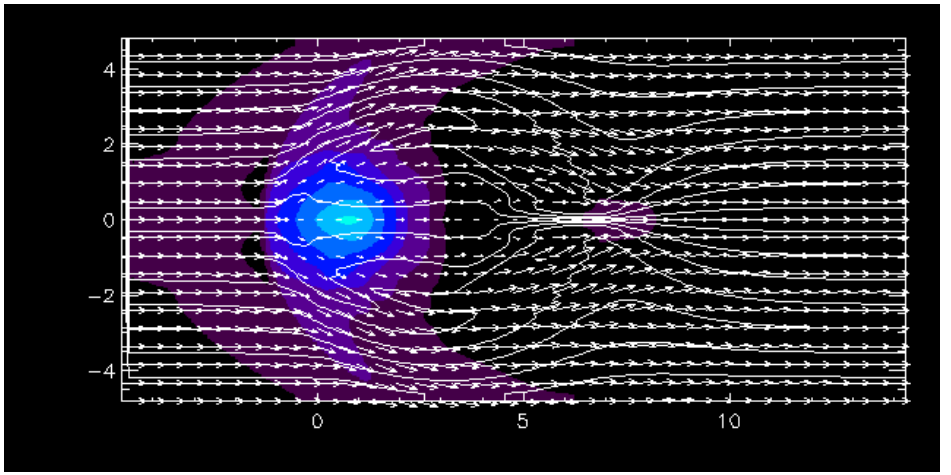
B_i=0.001, u_2=2, theta=90

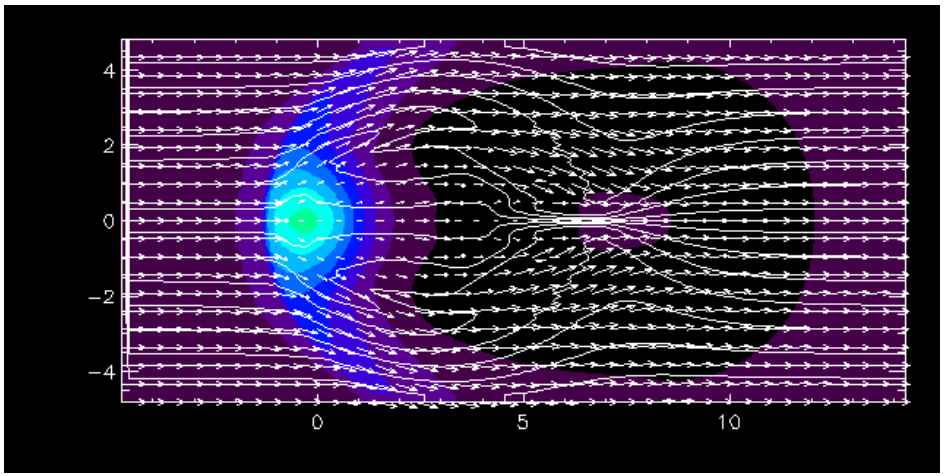
MLW





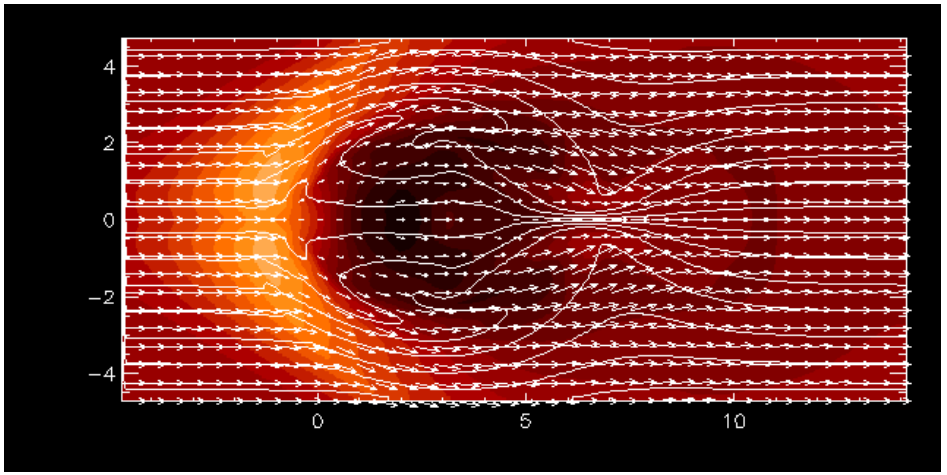
Roe

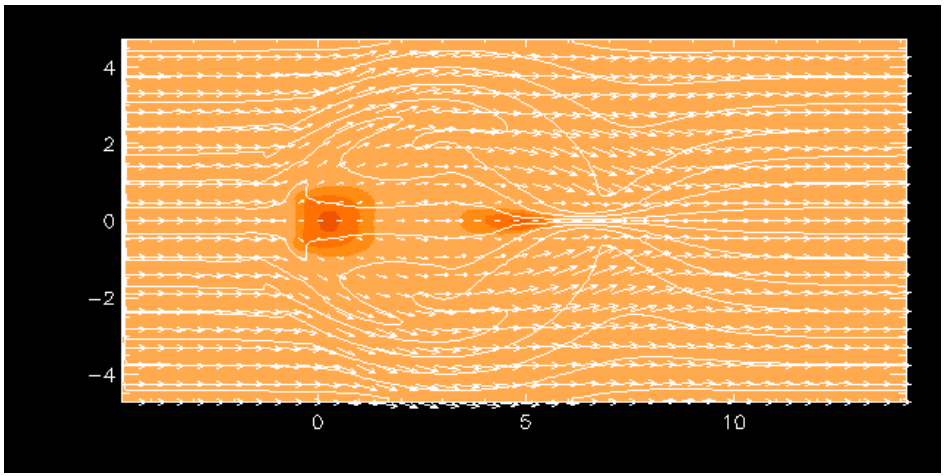




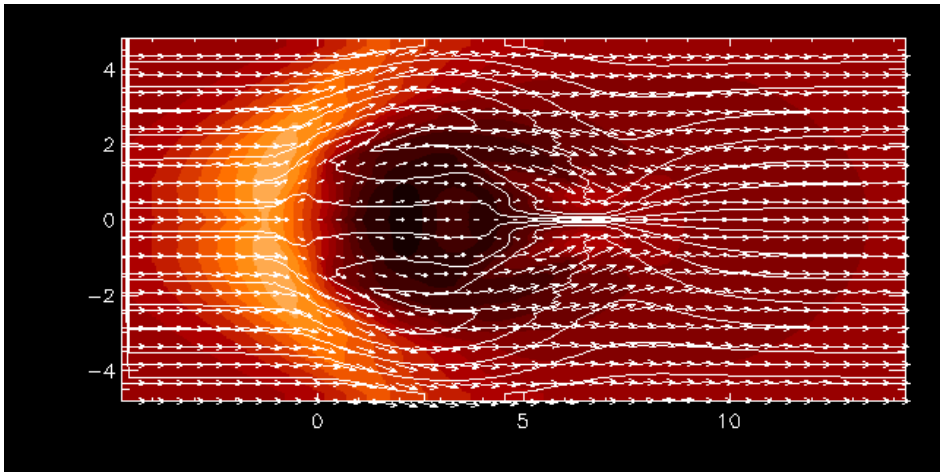
Te & Vx

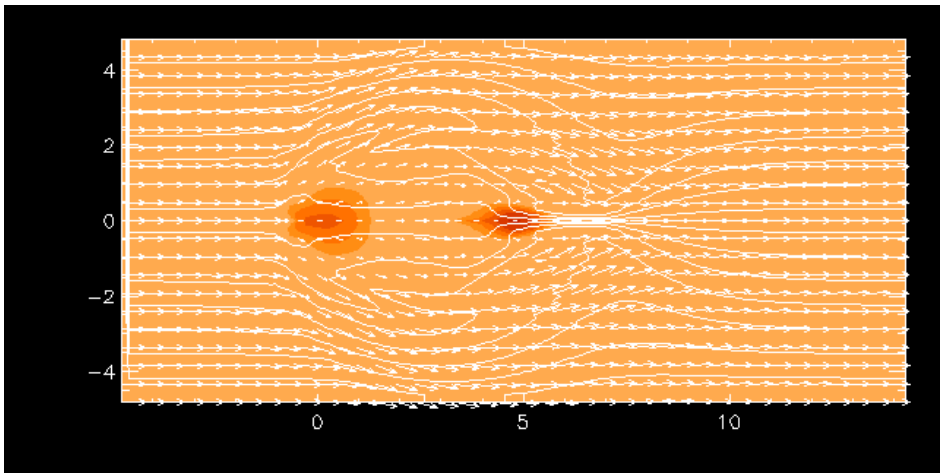
MLW





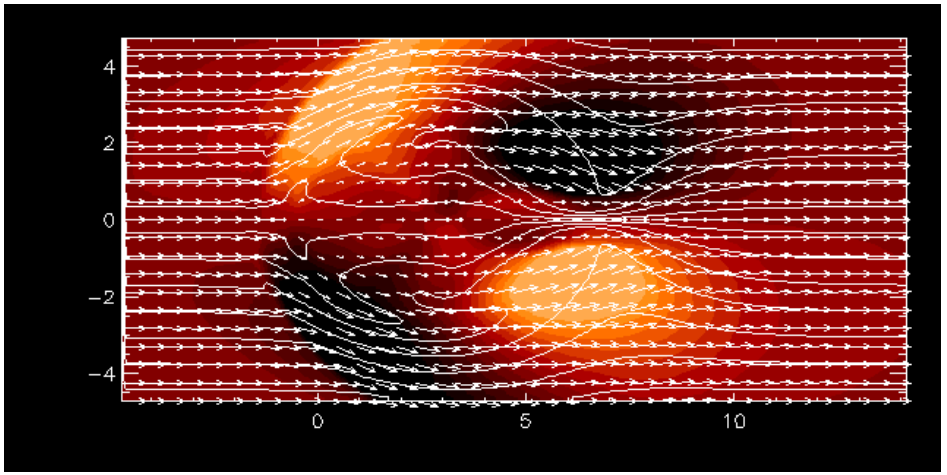
Roe



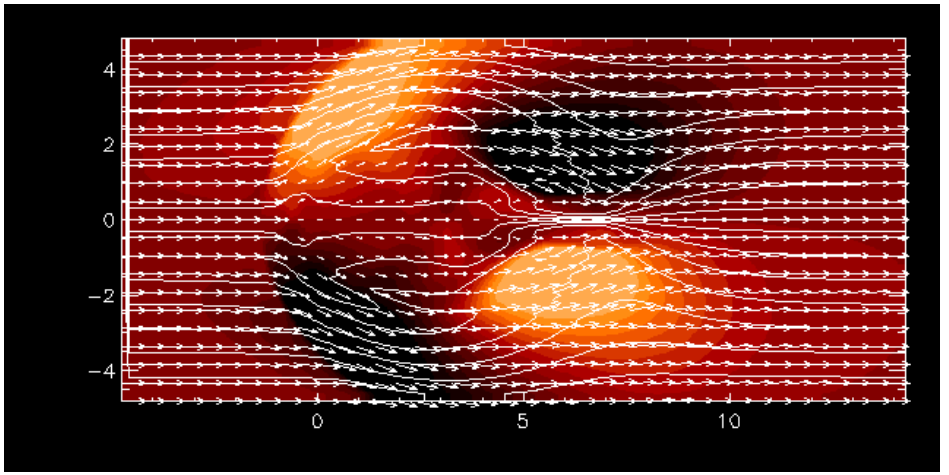


vy

MLW



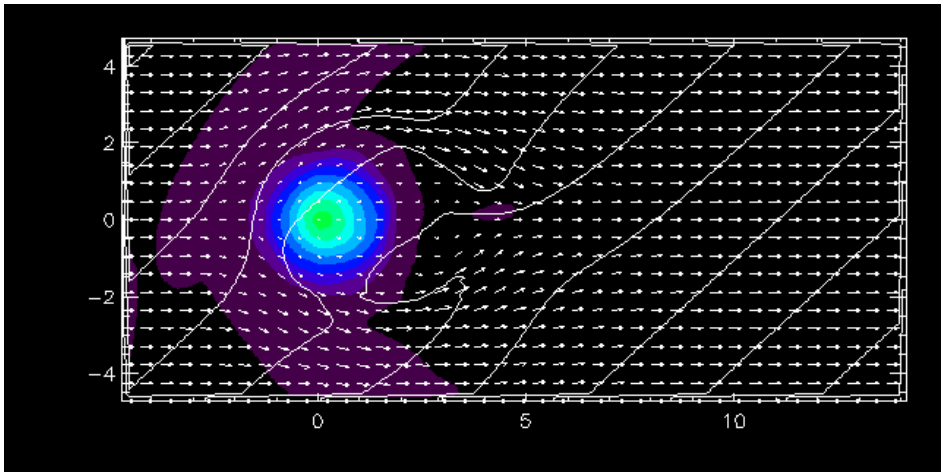
Roe

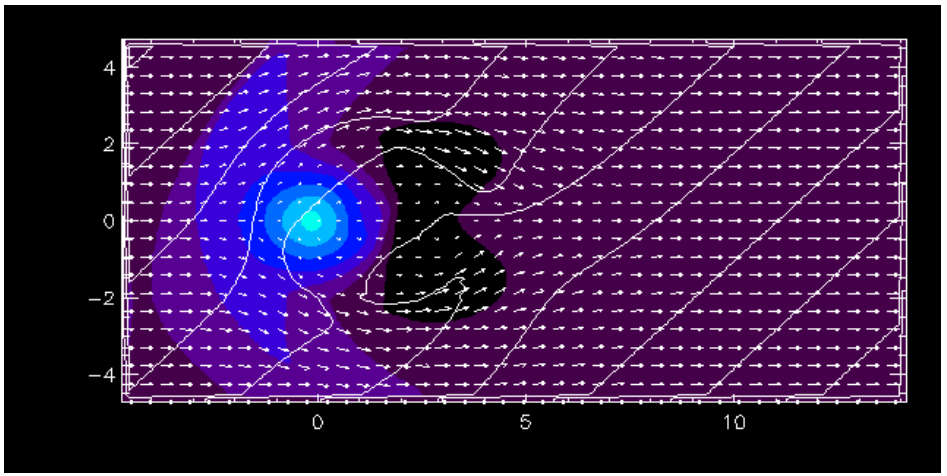


B_i=0.001, u_2=2, theta=45

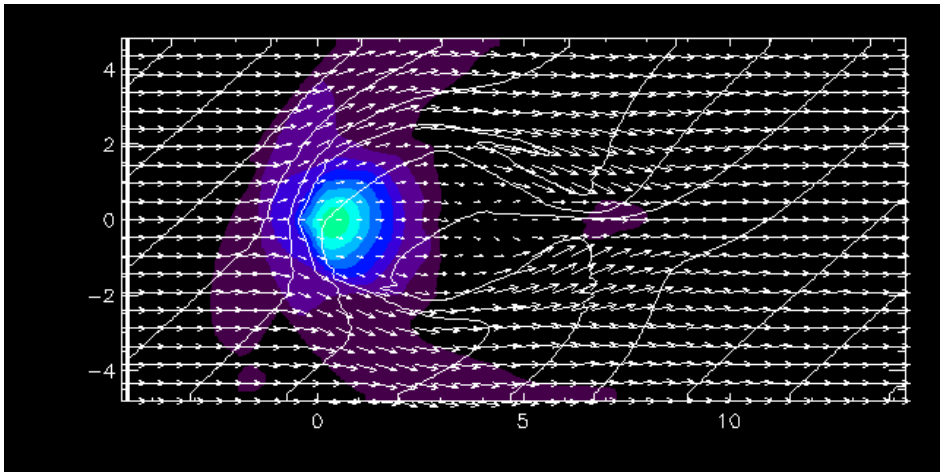
Ro & Pr

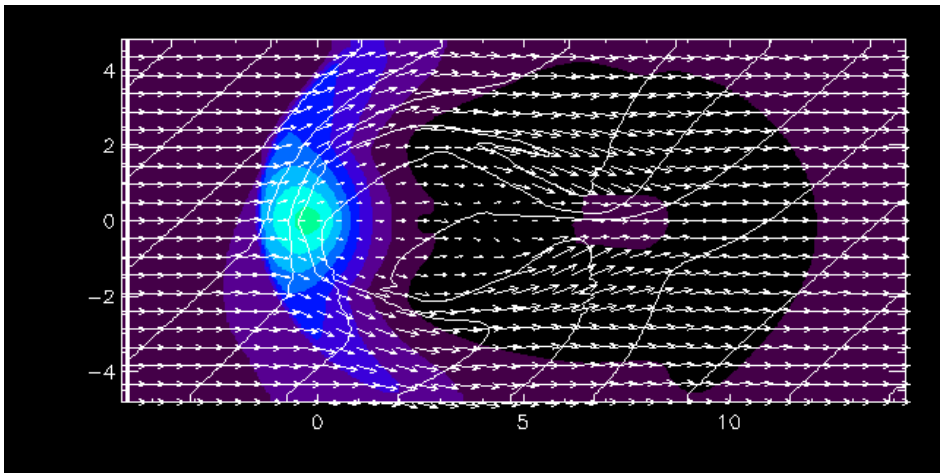
MLW





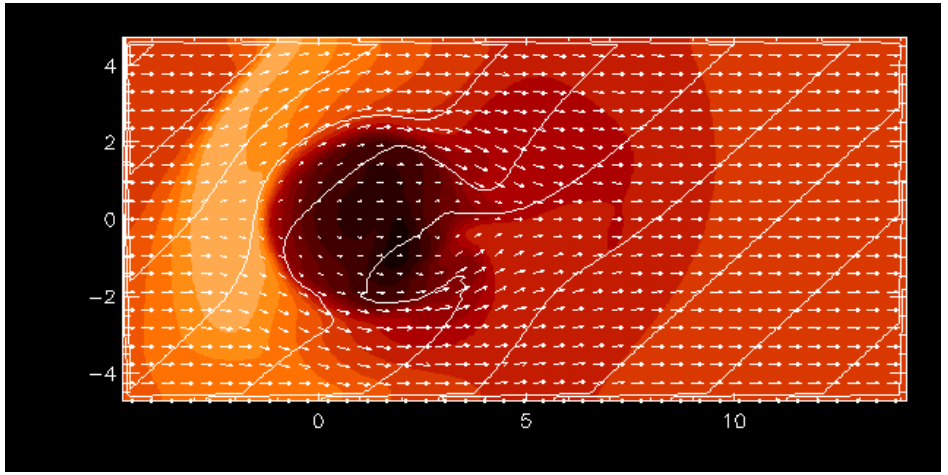
Roe



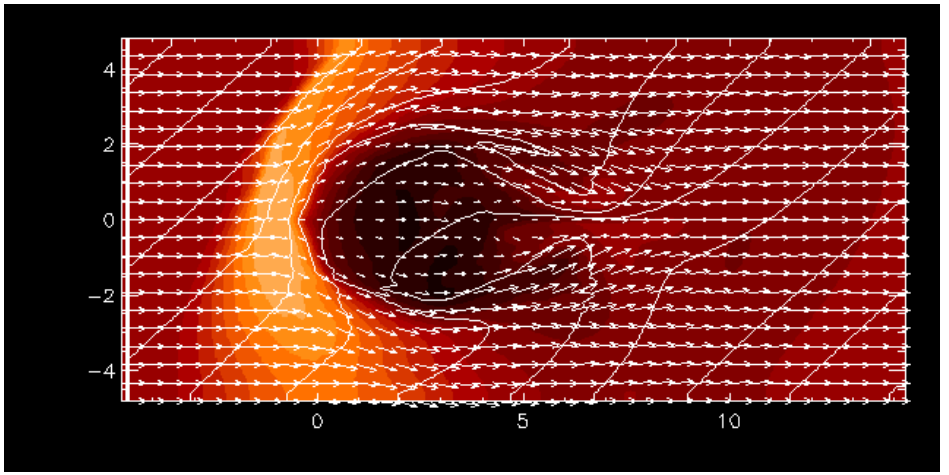


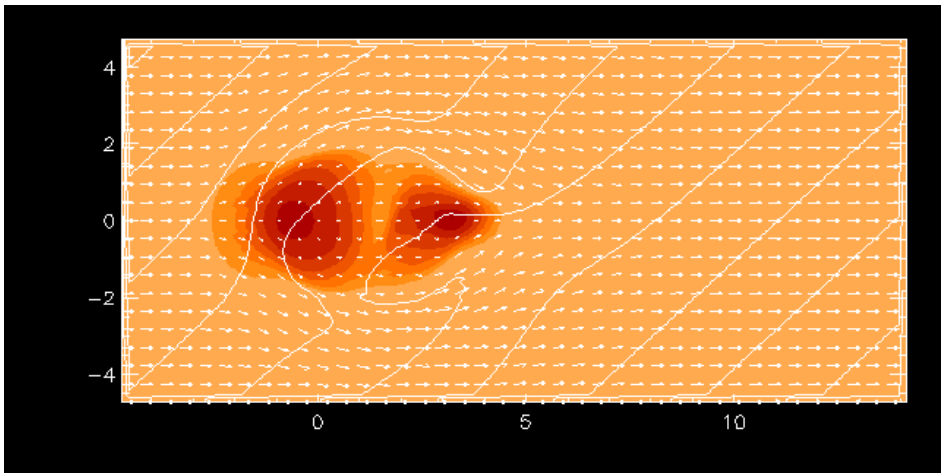
Te & Vx

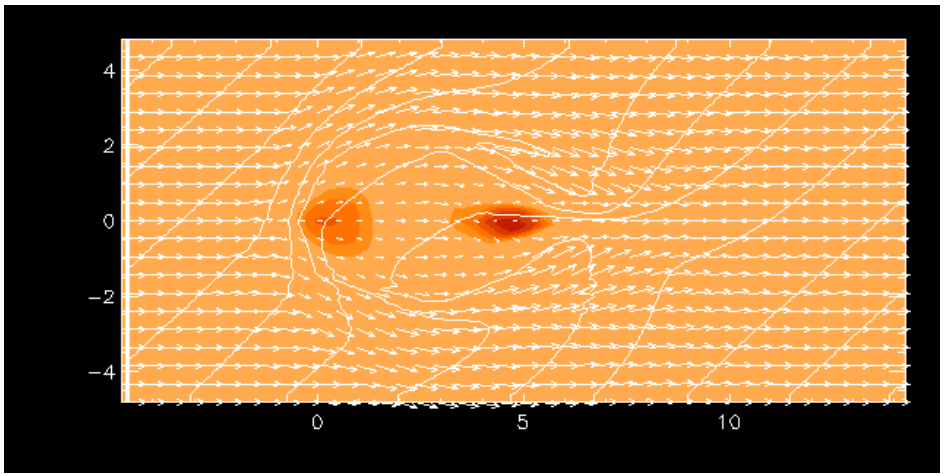
MLW



Roe

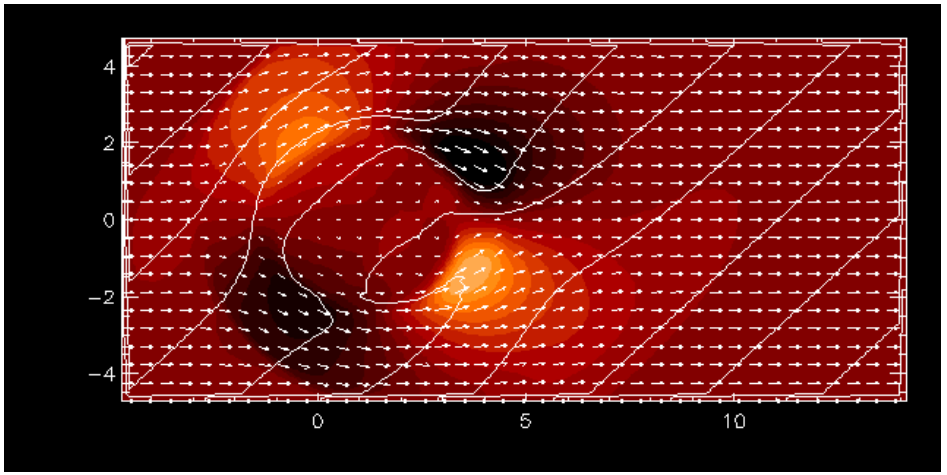




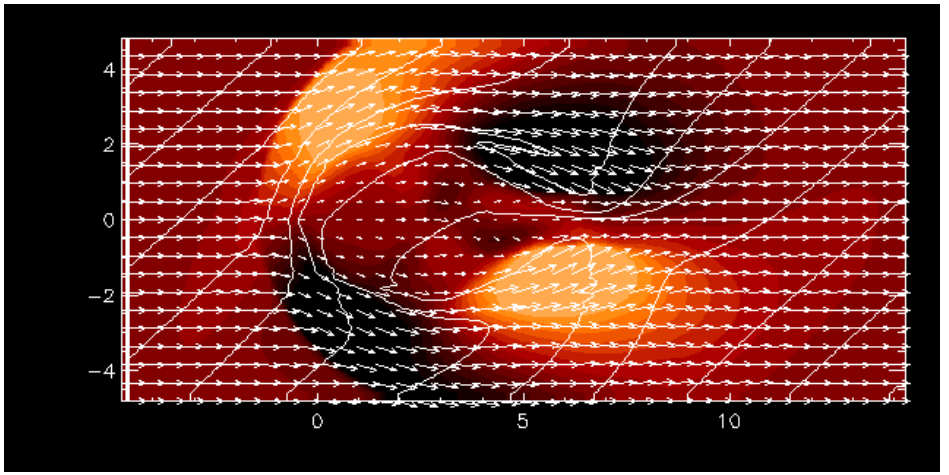


vy

MLW



Roe



Summary

- The results of Roe method is more sharp and clear structures than MLW.
- The numerical viscosity of Roe is smaller than MLW method.
- Roe seems better than MLW in this study.

Asymmetrical heat conduction due to the magnetic field

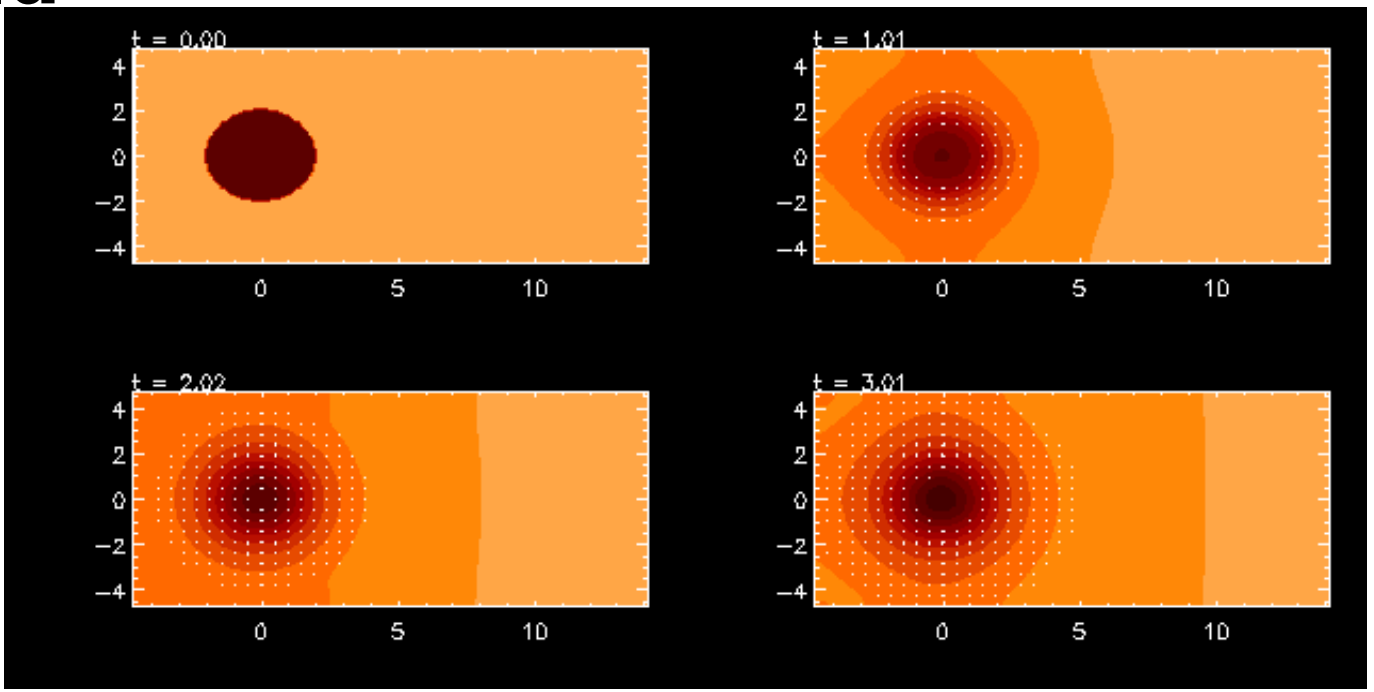
Dependence of the Mach number with heat conduction and magnetic field

Effect of the direction of magnetic field ~suppression of the heat conduction~

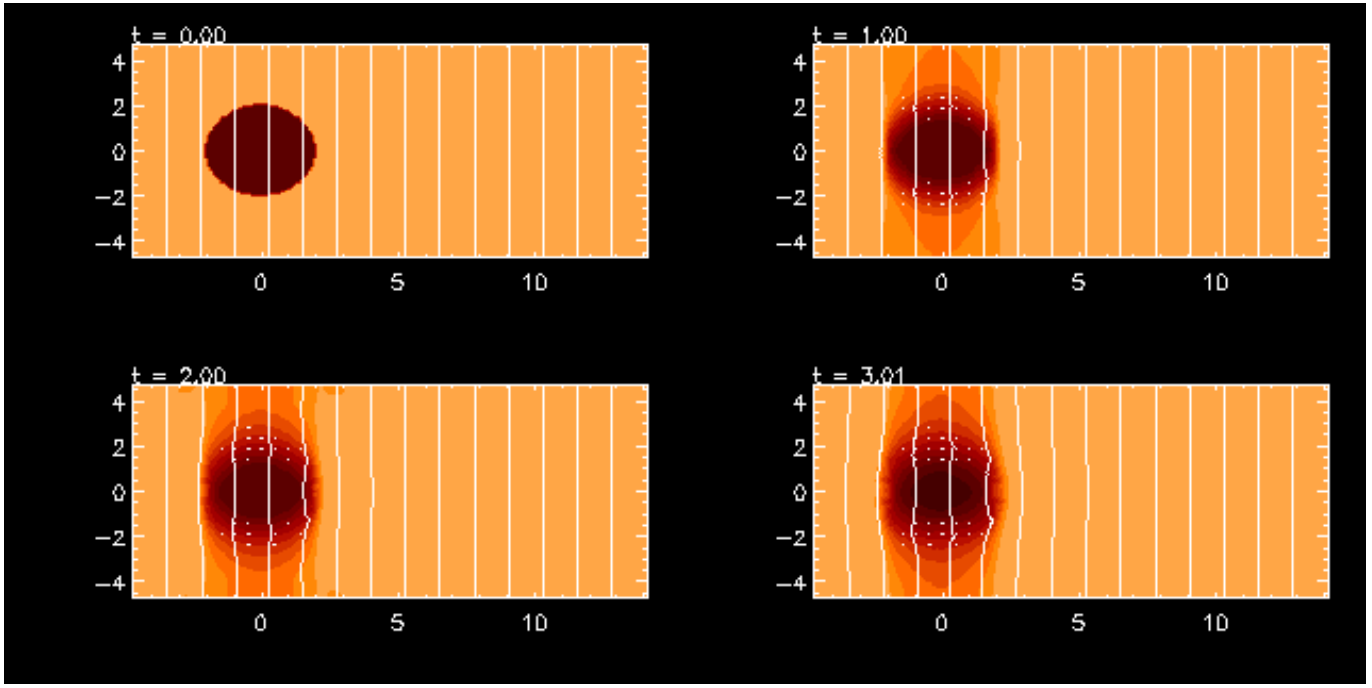
Shoko Miyake
(Ibaraki University, Japan)

Asymmetrical heat conduction due to the magnetic field

Non magnetic field

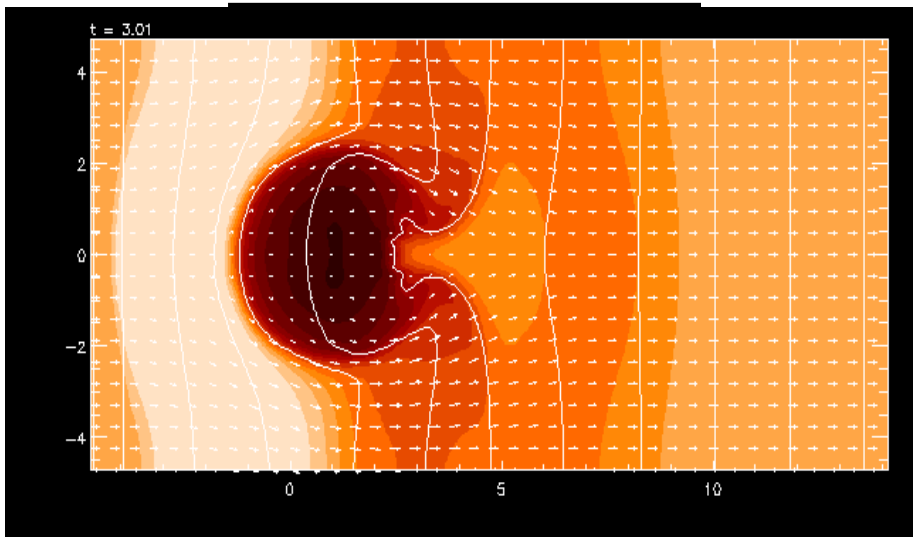


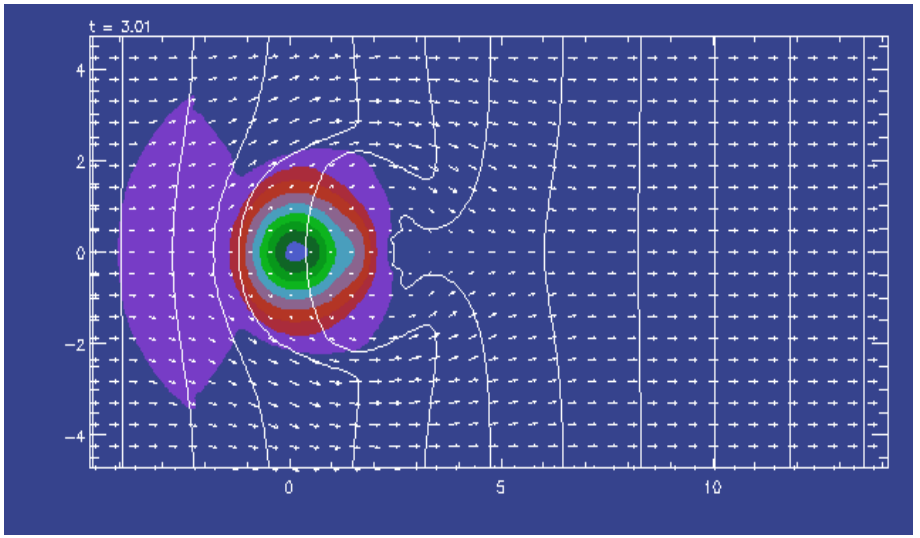
Perpendicular magnetic field



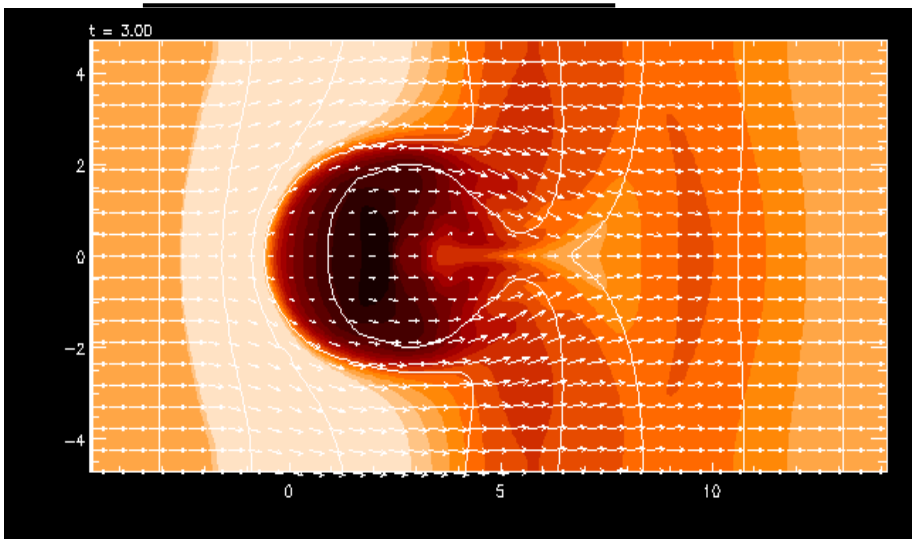
Dependence of the Mach number with heat conduction and magnetic field

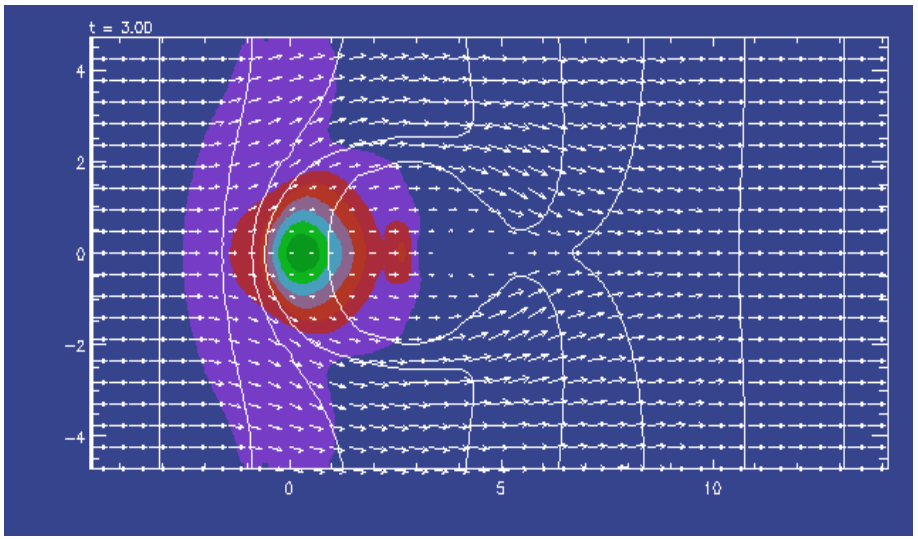
Mach number = 1





Mach number = 2





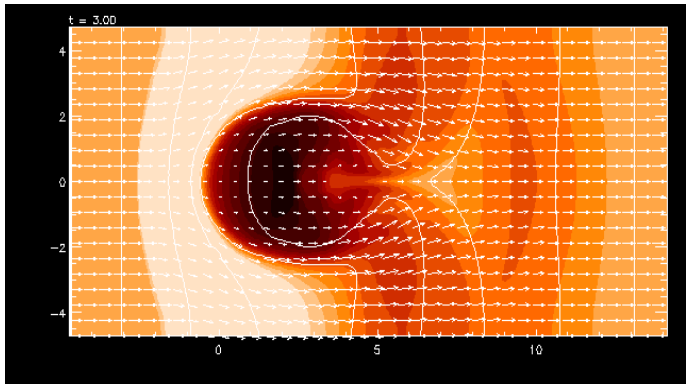
Effect of the direction of magnetic field ~suppression of the heat conduction~

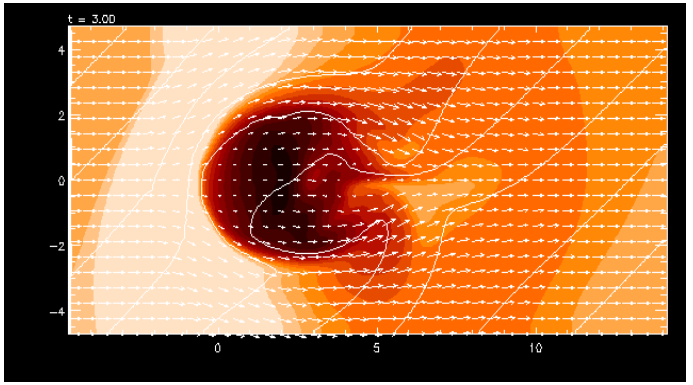
Perpendicular (90deg)

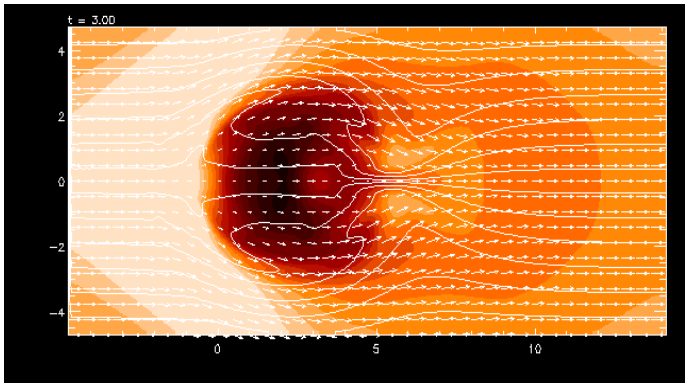
Diagonal (45deg)

Parallel (0deg)

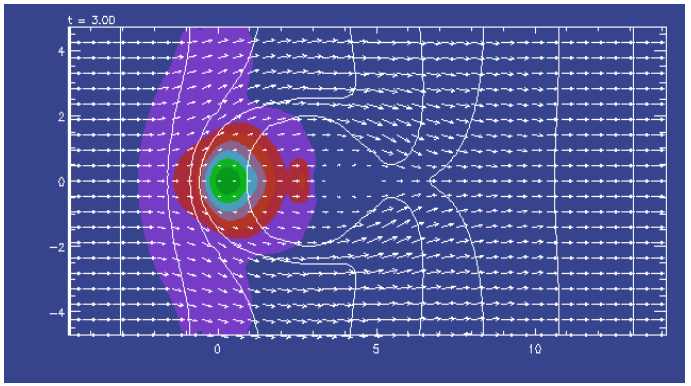
Temperature

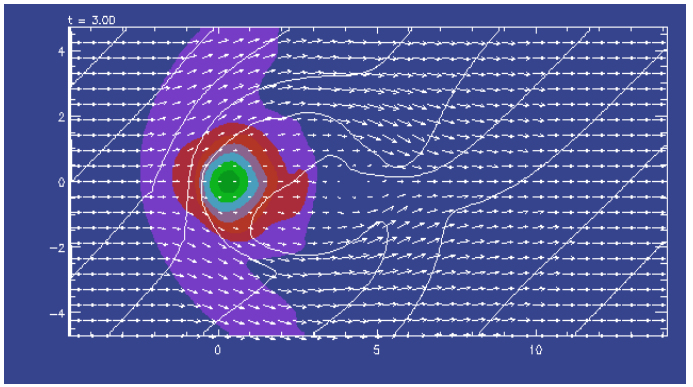


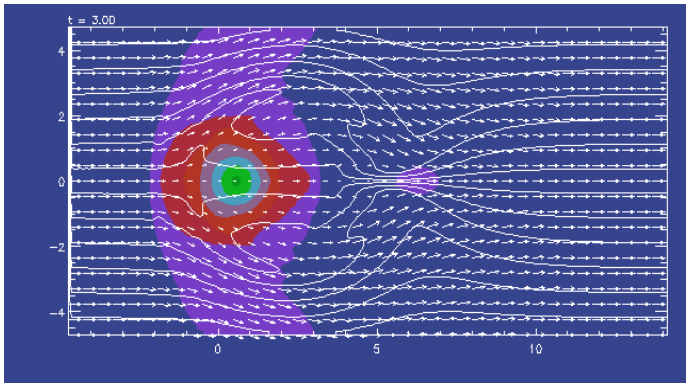




Density



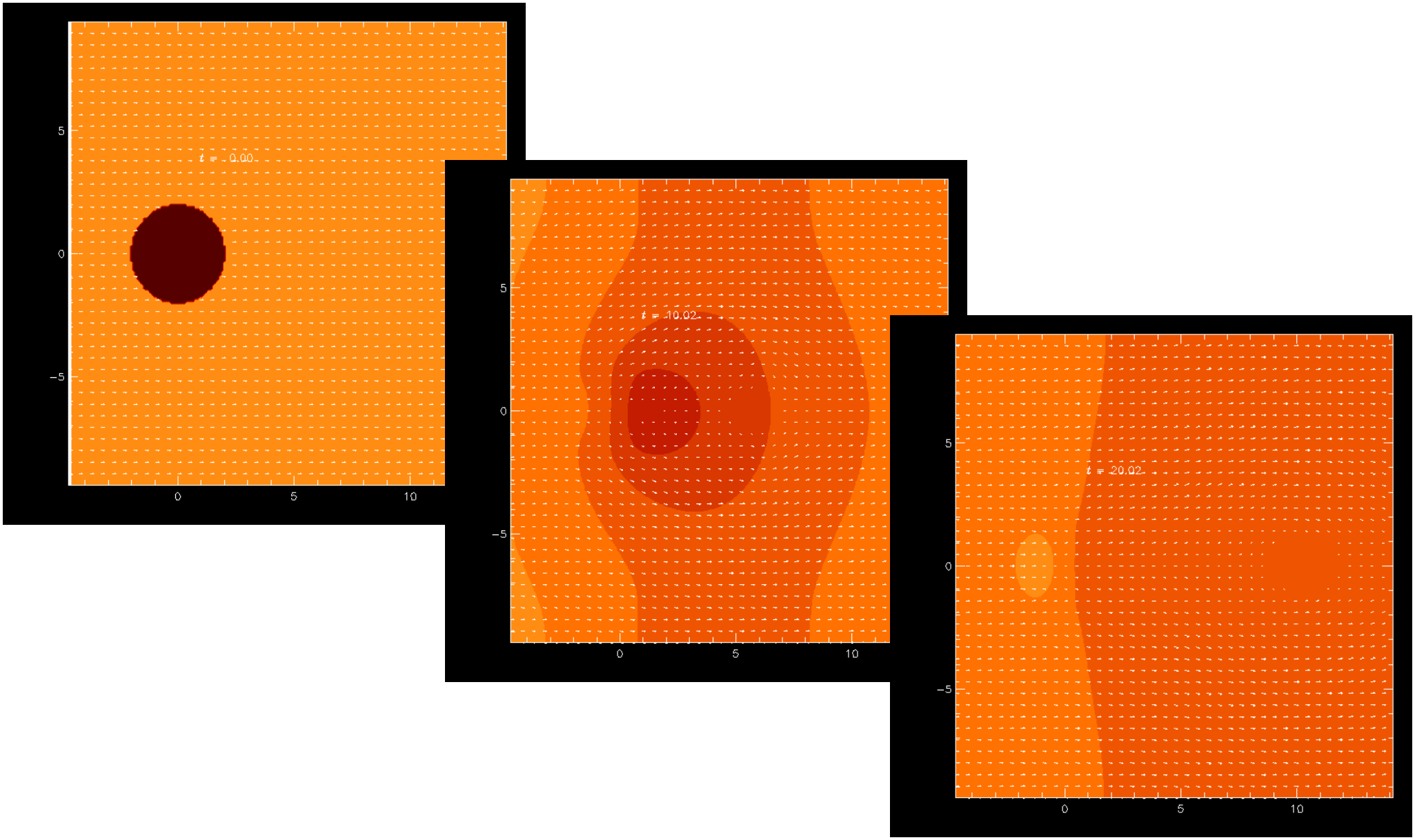




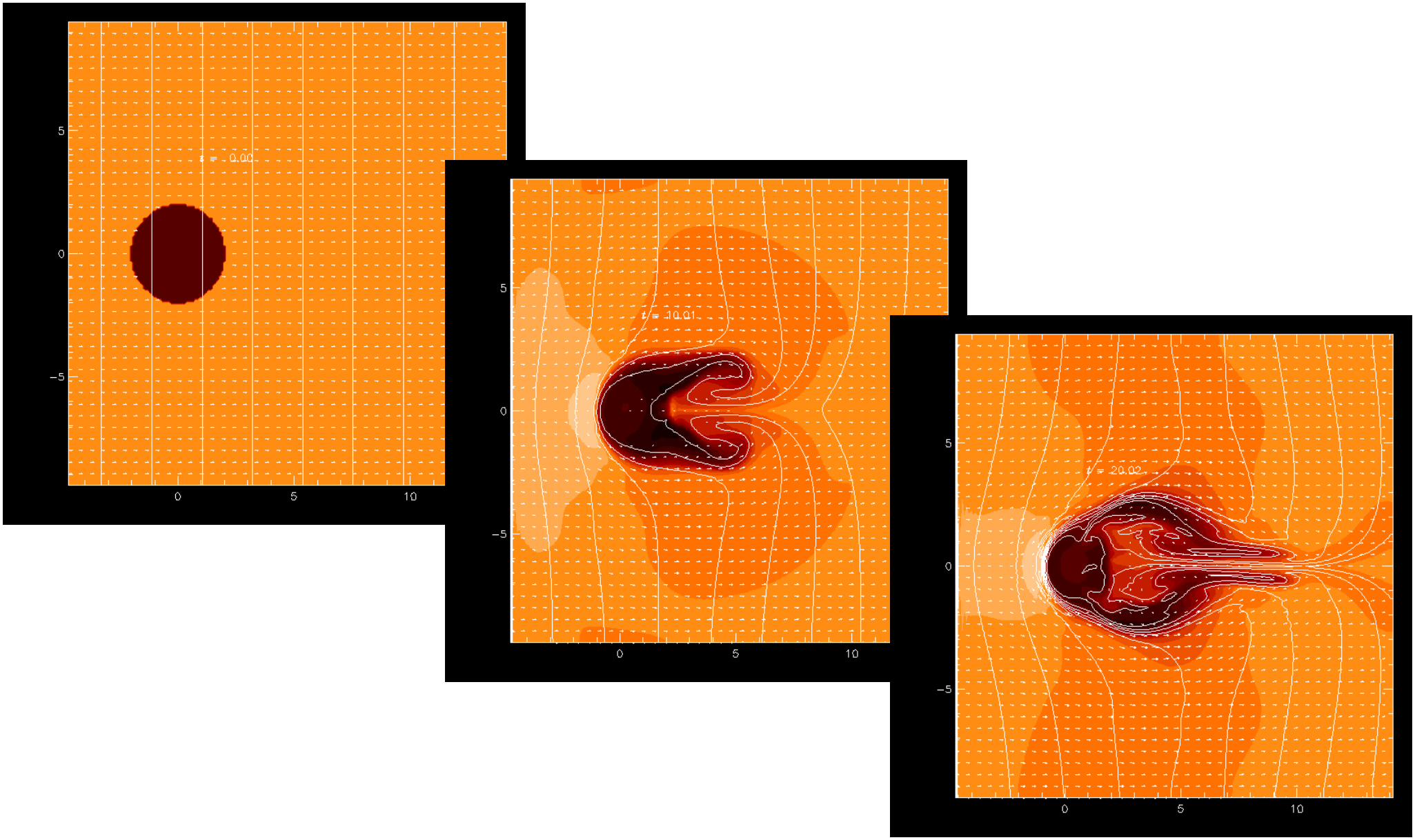
Detailed Study on heat conduction and boundary

Hyosun Kim
(Seoul National University, Korea)

No magnetic field case (1/beta=0)



Weak magnetic field case (1/beta=0.00001)



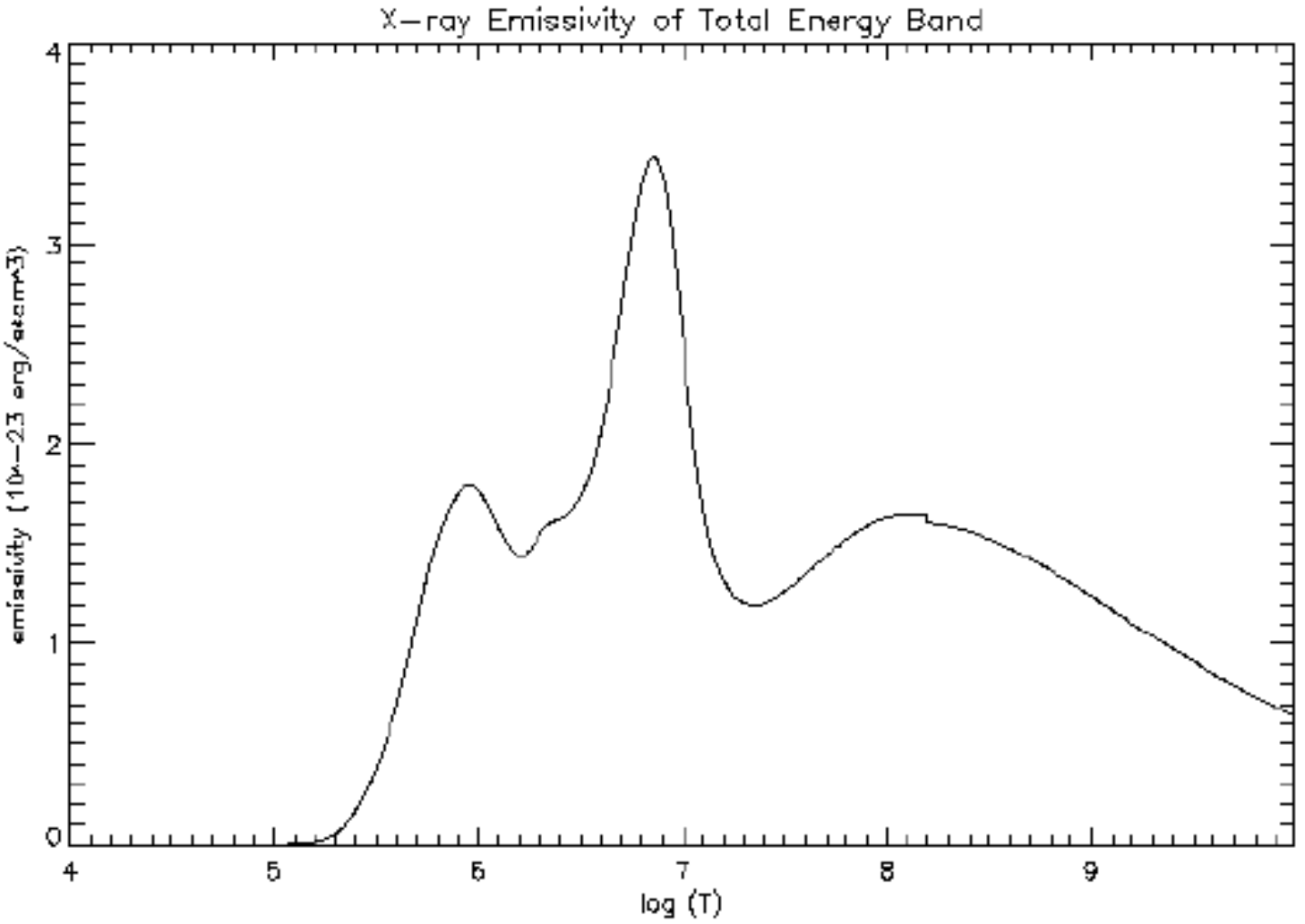
X-ray emissivity on Simulation

To get X-ray emissivity images,
I add and modify some .pro files.

[rddt.pro > xray.pro > animexr.pro]

Wan-Kee Cho
(Seoul National University, Korea)

Emissivity function, Λ (T)



Models

IC of model :

dtout = 4 * tn (normalized time scale)
tend = 20
Mach# = 1 * Cs (sound speed)
ro = 4 * ron (normalized density)
theta = 0 ~ 60

Results