

Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

**The new reconstruction method for velocity profile in TS6 device:
Phantom and initial results**¹ TARA AHMADI, HIROSHI TANABE, YASUSHI
ONO, Univ of Tokyo — The field related to computer tomography of experimental
measurements needs constant progress as the popular methods like ME have serious
flaws. To overcome these limitation, full Helmholtzs decomposition theorem along
with analytical (Maximum Fisher and max. likelihood) and algebraic(linear iterative
reconstruction and solution based regularization) reconstruction methods have been
proposed to carry inverse reconstruction problem for TS-6 merging plasma data to
calculate velocity components of flow. Combining these methods along with solution
regularization method made it possible to obtain radial velocity profile from data
received from multiple angles with high accuracy which is not in reach by other
algorithms. The Vr profile has maximum in the outflow jet which is predicted by
simulation. The number of channels necessary for this method is several times less
than the necessary number for analogous methods. Reconstructed phantom profile
showed good capacity of proposed method for ring-like emissivity profile compared
to Fourier and ME methods with exact numbers of channels. However, before using
this method to analyze experimental data, a set of simulation data with well-known
velocity profile will be used to double check the method.

¹JSPS research fellowship for young scientists

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Date submitted: 19 Sep 2019

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