

Abstract Submitted  
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**Plasma velocity profile during merging by using regularized reconstruction technique**<sup>1</sup> TARA AHMADI, HIROSHI TANABE, YASUSHI ONO, Univ of Tokyo — A standard method to derive local emission profile from the optical fibers line of sight is tomographic inversion. Such an inversion is burdensome due to its ill conditioned state and the dependency of reconstructed profile quality not only on measurement but also on the reconstruction algorithm used. To overcome these limitation, full Helmholtz decomposition theorem along with analytical (Max. Entropy duality with Max. Likelihood Estimation) and algebraic(linear iterative reconstruction and solution based regularization) reconstruction methods have been proposed to carry inverse reconstruction problem for TS-6 merging plasma. 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. This method showed good capacity in inversion problem, but needs improvement in solution regularization. The uniqueness of the achieved solution should be proved as the assumption regarding plasma incompressibility may affect the final solution. However, the evidence of existing another solution has not been observed TS-6 data test. After, gathered emission profile will be used as training for neural network for fusion tomography.

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