# 2023 TSVV-5 Annual Report from DIFFER

Because the main DIFFER contributor, Jorge Gonzalez, left the institute for another job in January of this year and no follow-up was hired, the tasks for DIFFER had to be redefined during the course of this year. As a consequence only a limited program could be carried out.

Egbert Westerhof took over the task of providing Magnum-PSI simulations. On this topic a start was made to study the importance of properly resolving the molecular hydrogen vibrational distribution. This work is still in progress and will continue in 2024

DIFFER assigned the software engineer Pieter Willem Groen, who was also involved in the development of the EUNOMIA code, to take over some tasks concerning EIRENE code refactoring. Pieter Willem participated in the November code camp at which agreements for his contributions were further specified. In 2024 he will contribute to

- work on streamlining code of particle tracing routines and/or geometry (time routines, preparing for unstructured grid) (including variable grouping and renaming)

- possibly, in preparation of this, create a variable dictionary

- work on collaborative document containing code styling/ coding rules.

Publication:

J Gonzalez. R Chandra, H J de Blank and E Westerhof, “Coupled simulations with SOLPS-ITER and B2.5-Eunomia for detachment experiments in Magnum-PSI”, Plasma Phys. Control. Fusion 65 (2023) 045009 (14pp), <https://doi.org/10.1088/1361-6587/acbe61>

Related publications:

Gonzalez, E Westerhof and T W Morgan, “SOLPS-ITER simulations of a vapour box design for the linear device Magnum-PSI”, Plasma Phys. Control. Fusion 65 (2023) 055021 (11pp), <https://doi.org/10.1088/1361-6587/acc8fa>

Giuseppe Francesco Nallo, Jorge Gonzalez, Elisabetta Bray, Teobaldo Luda di Cortemiglia, Chiara Marchetto, Fabio Subba, Egbert Westerhof and Roberto Zanino, “Towards Integrated Target–SOL–Core Plasma Simulations for Fusion Devices with Liquid Metal Targets”, Journal of Fusion Energy (2023) 42:41, <https://doi.org/10.1007/s10894-023-00377-5>