Collimator of neutral particle analyzers of ITER [[1]](#footnote-1)\*)

DOI: 10.34854/ICPAF.2023.50.2023.1.1.266

1Taskaev A.S., 1Ivantsivskiy М.V., 1Burdakov A.V., 1Shiyankov S.V., 1Ryzhankov I.S., 1Gavrilenko D.E., 1Seryomin V.V., 2Petrov S.Ya., 2Afanasyev V.I., 2Navolotsky A.S.

1Budker Institute of Nuclear Physics SB RAS, Novosibirsk, RF  
2A.F. Ioffe Physical-Technical Institute, Saint Petersburg, RF

The collimator of the diagnostic system "neutral particle analyzers" is located in the equatorial port №11 in the central diagnostic shielding module. The collimator is designed to reduce the neutron flux into the near-port space and to reduce the activation dose in the near-port space. The branch pipe is welded directly onto the closure plate of the port plug and provides a vacuum-tight connection of the tokamak chamber with the pipeline, which connects the installation with the analyzers installed in the port chamber behind the bioshield.

The collimator consists of five sections. The basis of each section is a neutron collimator block, which is manufactured by electroerosion from stainless steel AISI 316LN-IG and is a monolithic structure. On one of the sides, a neutron shield casing is bolted to the collimator block of each section. The other side of the blocks is used to fasten them in the other half of the casing, which is installed in advance in the diagnostic shielding module.

BINP SB RAS, together with a subcontractor, manufactured all five sections of the collimator with a neutron shielding casing, which will be delivered to the ITER site as part of the diagnostic shielding module №2 of the equatorial port №11.

1. \*) [abstracts of this report in Russian](http://www.fpl.gpi.ru/Zvenigorod/L/E/ru/JO-Taskaev.docx) [↑](#footnote-ref-1)