3D modelling of the CBM dipole magnet.

Pavel Akishin

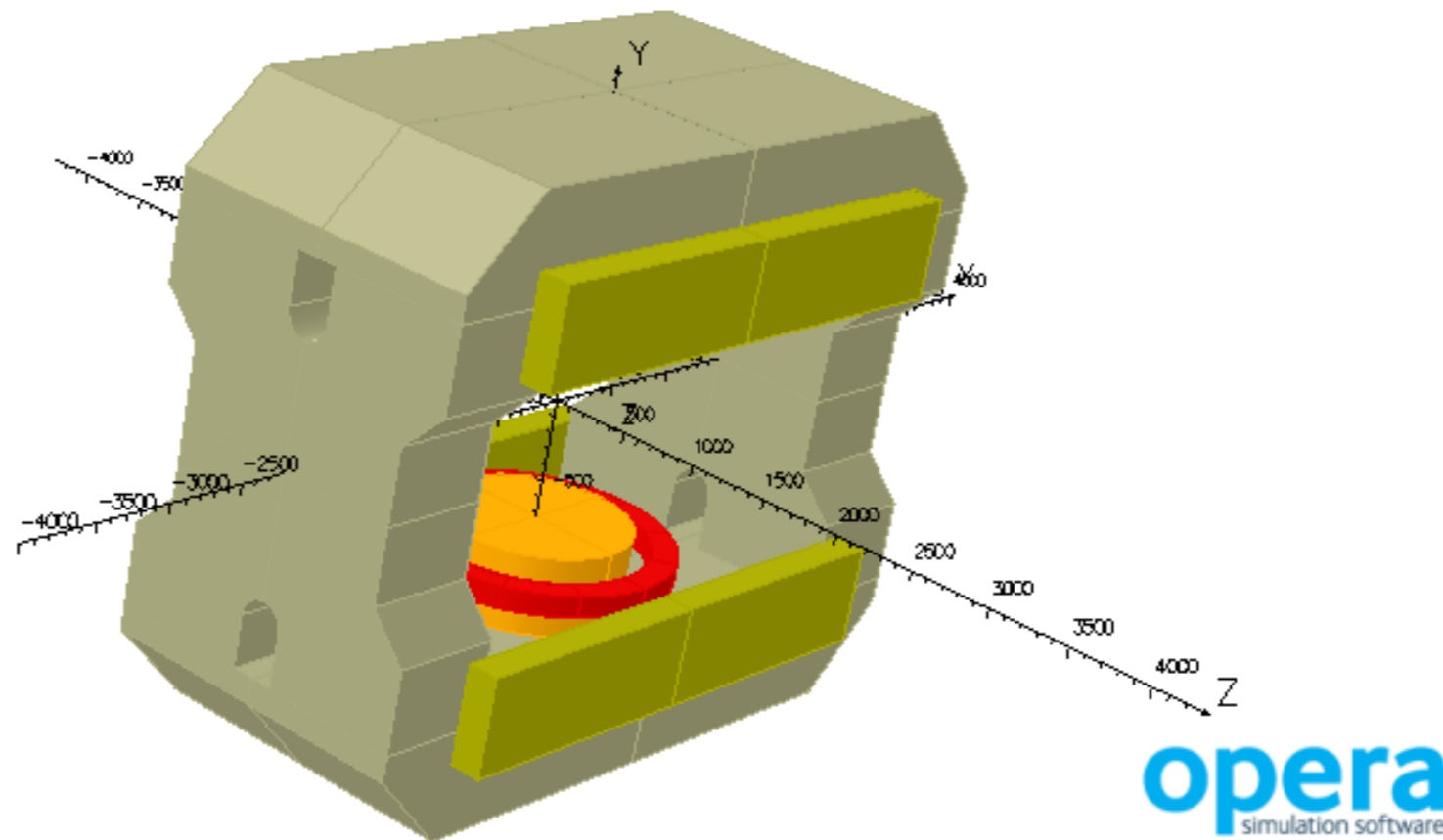**JINR (Dubna)**

24.04.2018

The CBM dipole magnet .
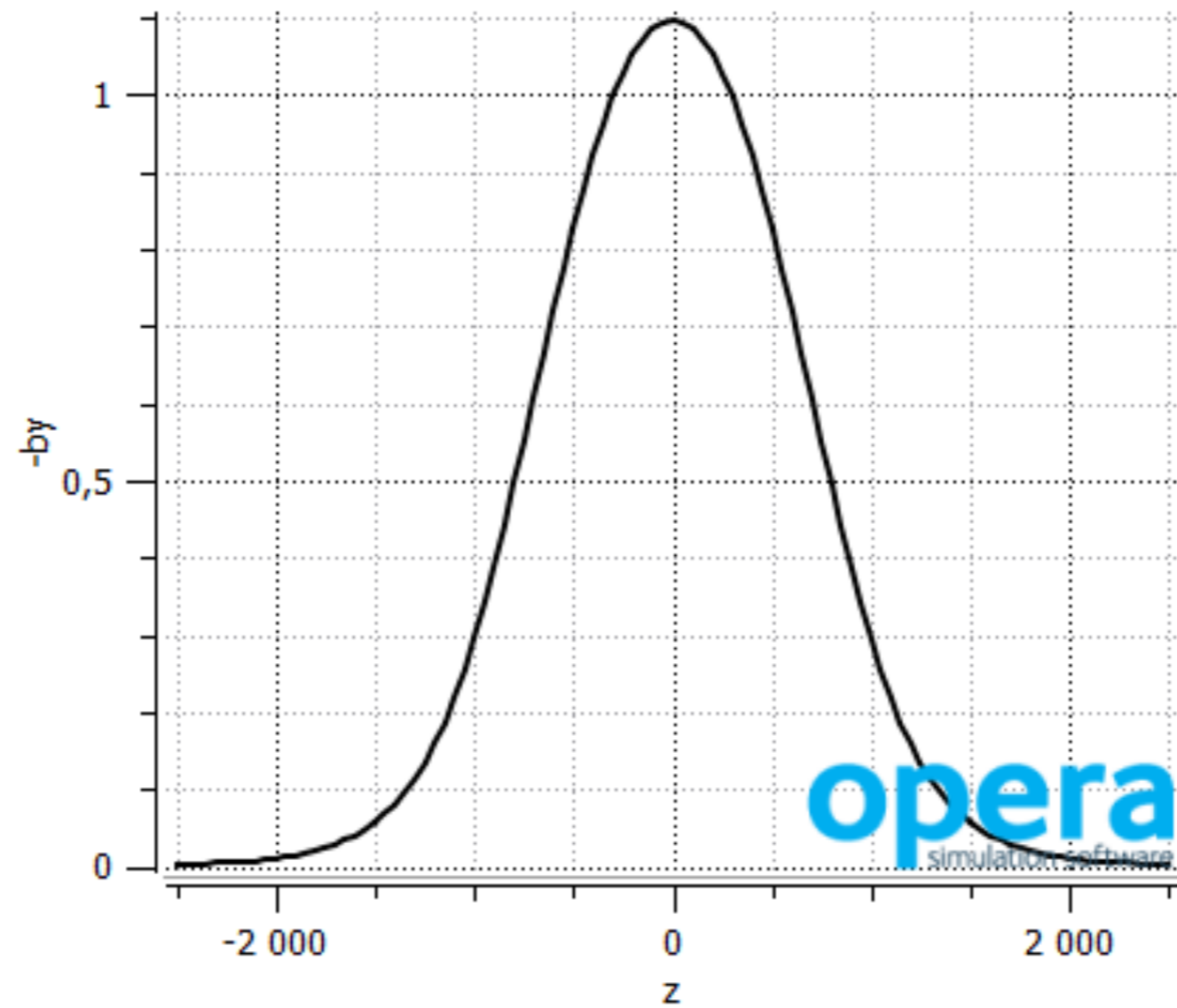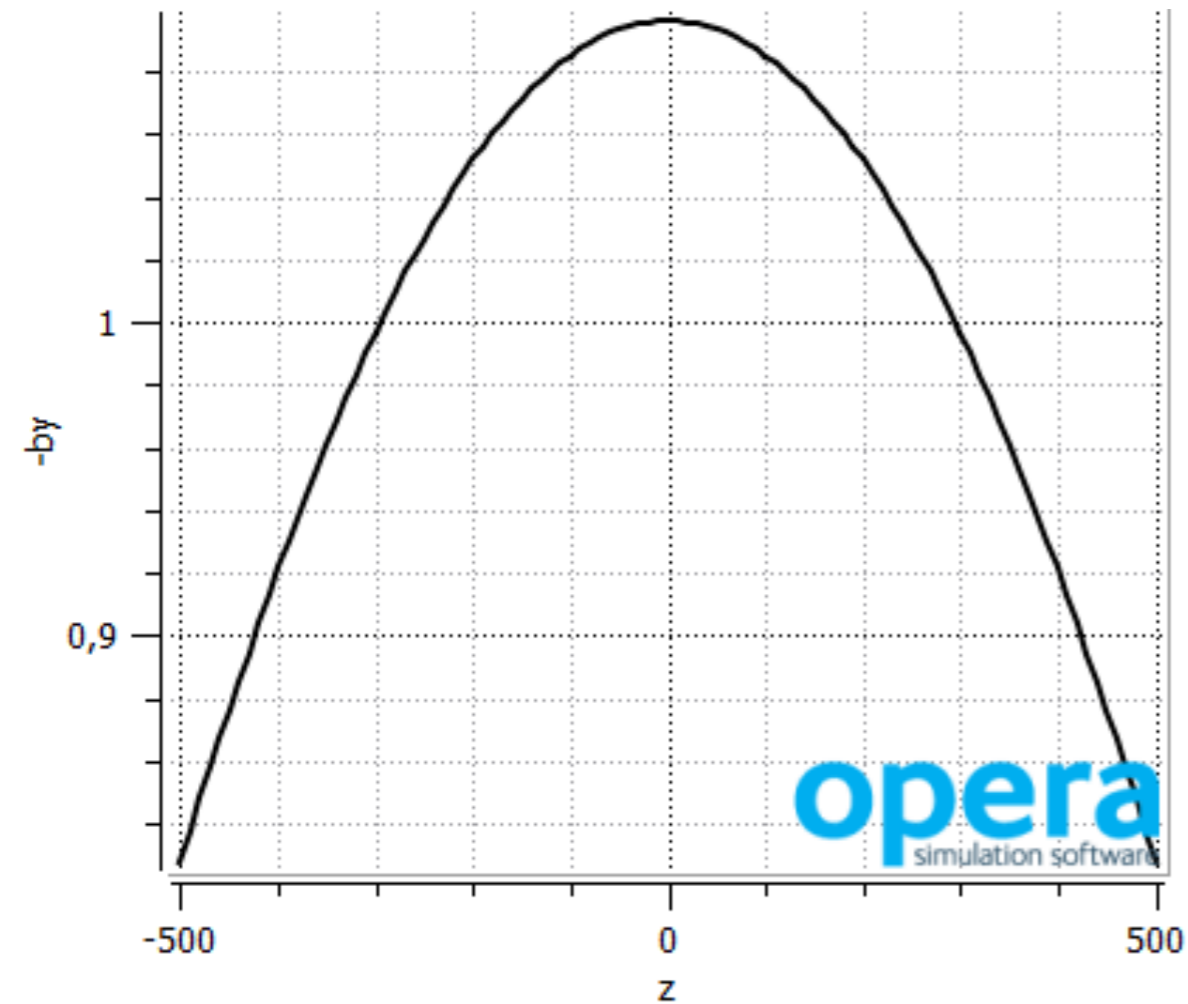# The general view of the magnet.

- Tosca program was used for 3D modelling.
- There are ~ 73 million elements and ~ 14,5 million nodes in the eighth part of model.
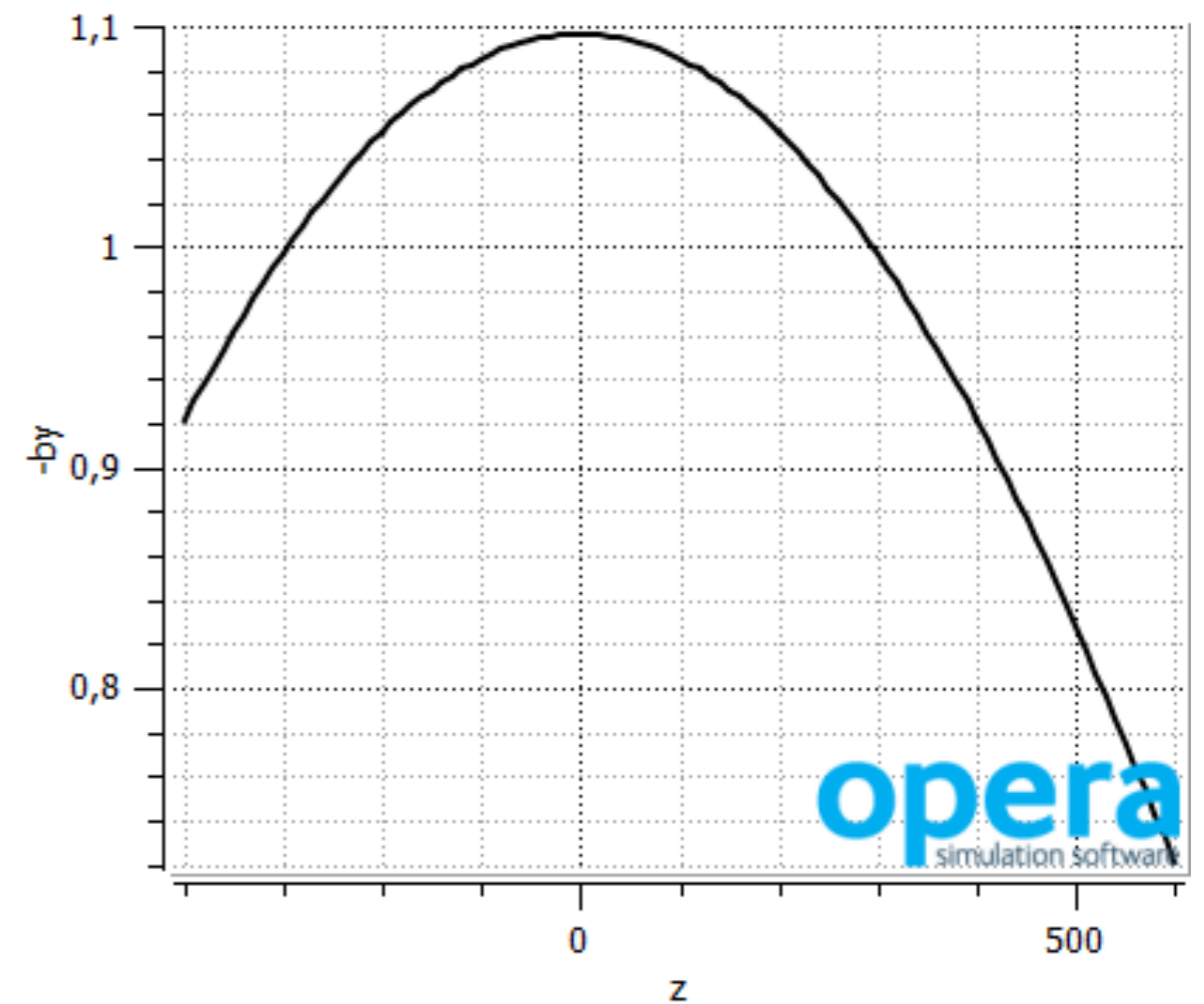- We used three plain symmetries.

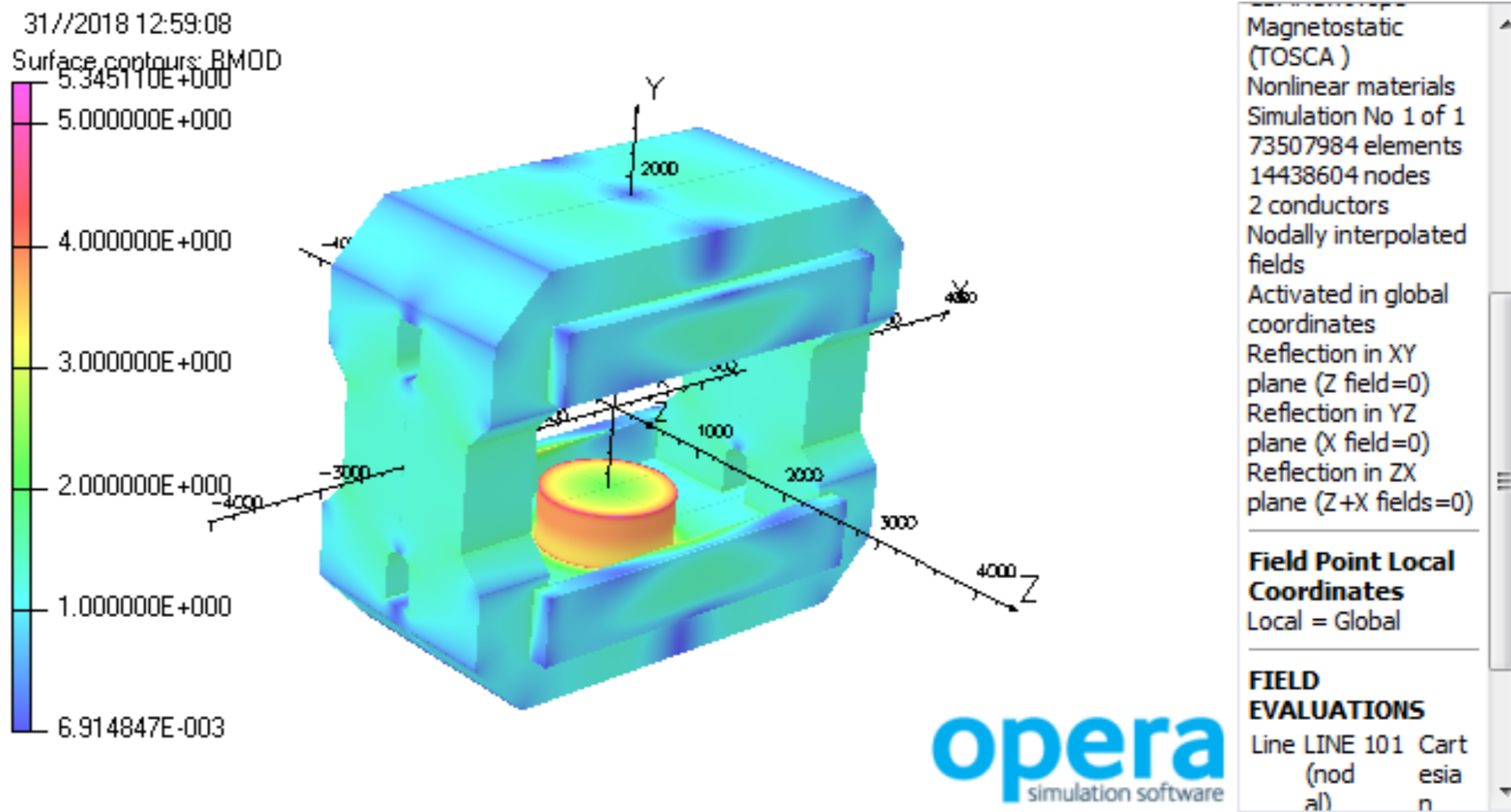# Magnet field distribution along the beam.

Field integrals.

-500 mm < z < 500 mm

The field integral is 1005.014 Tmm.

-400 mm < z < 600 mm

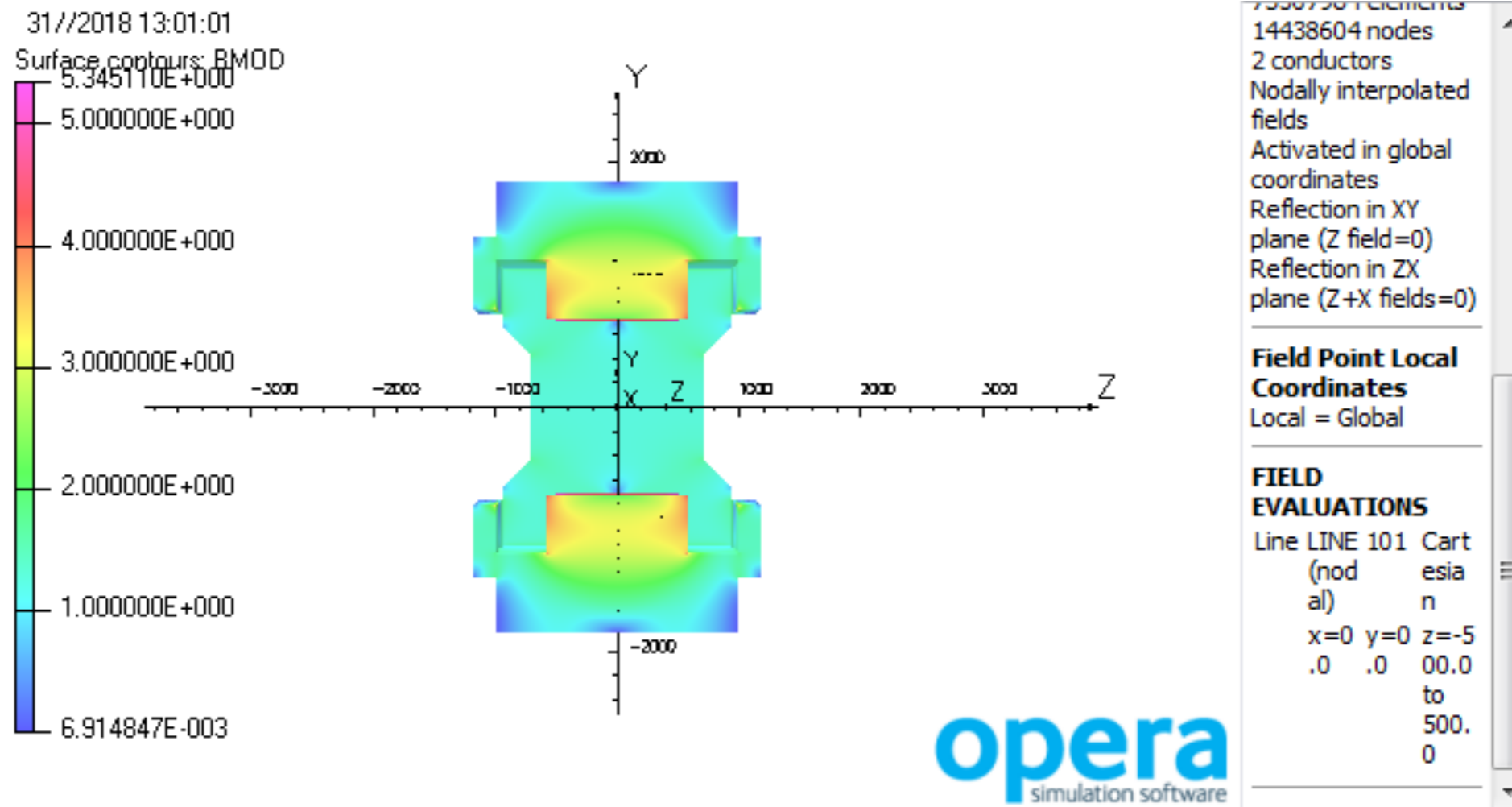The field integral is 994.911 Tmm.
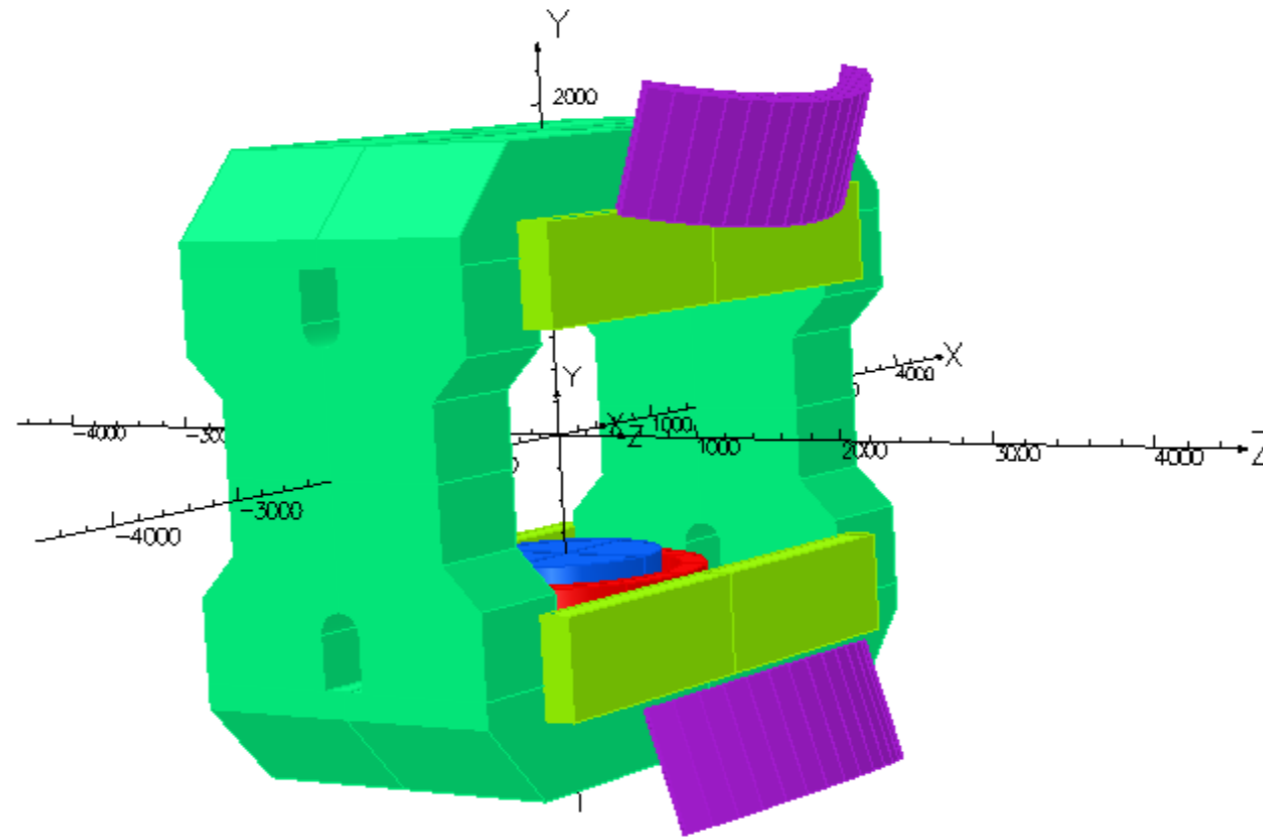
The current in one coil is 1.2Ma.

The magnet saturation picture.

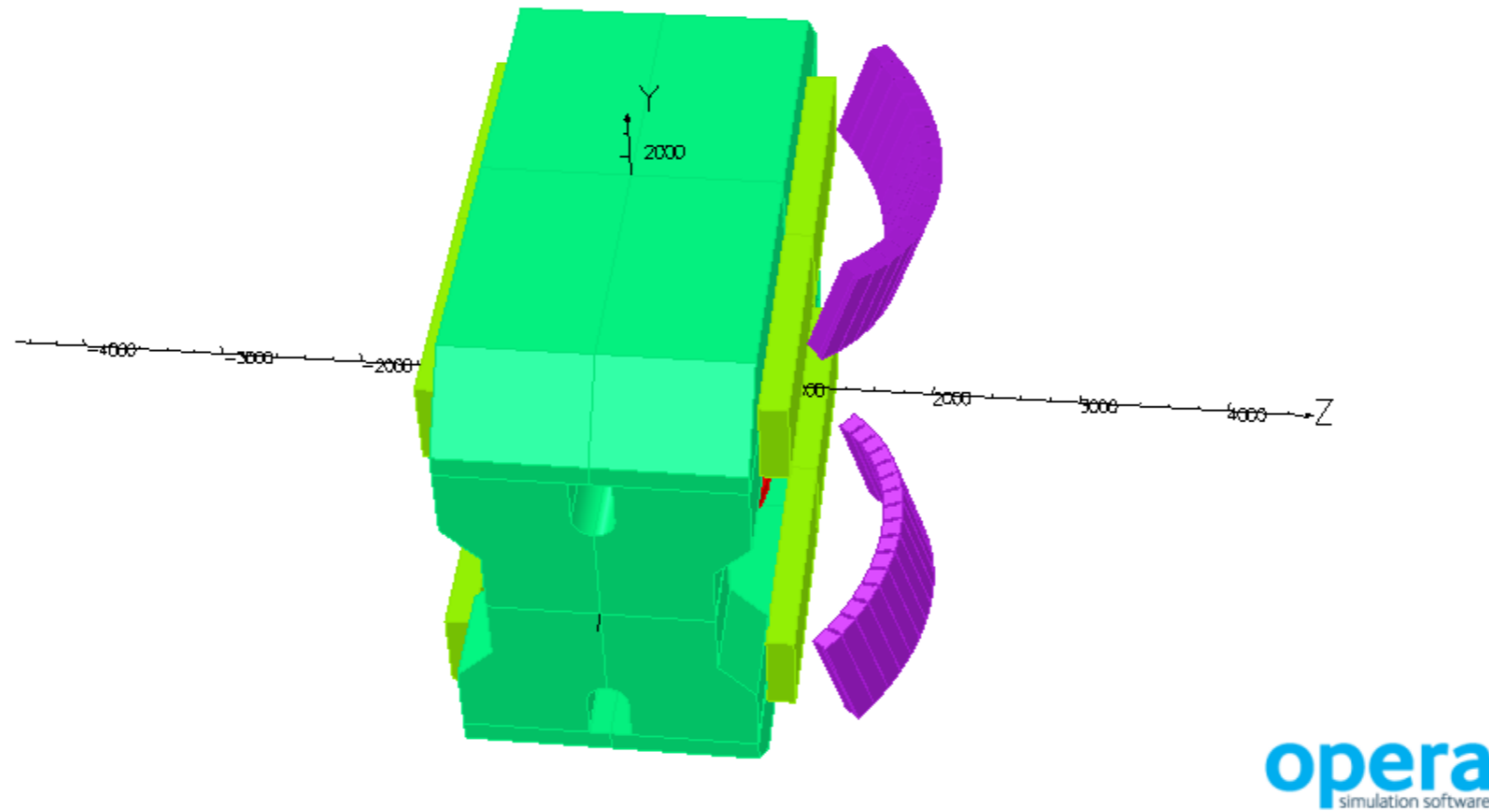Full magnet.

The magnet saturation picture.

Half of magnet.

RICH photodetector localisation.

General view.

RICH photodetector localisation.
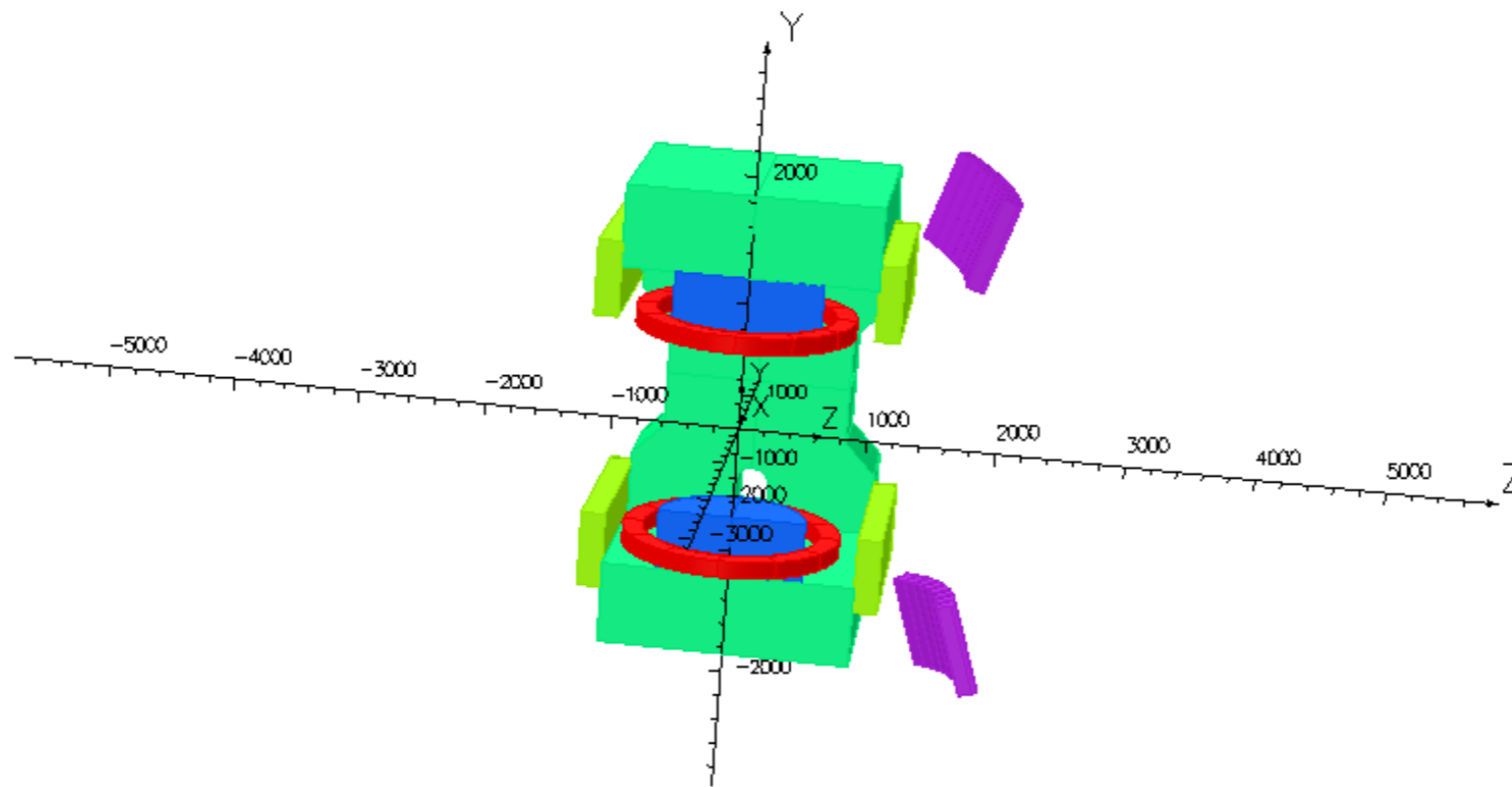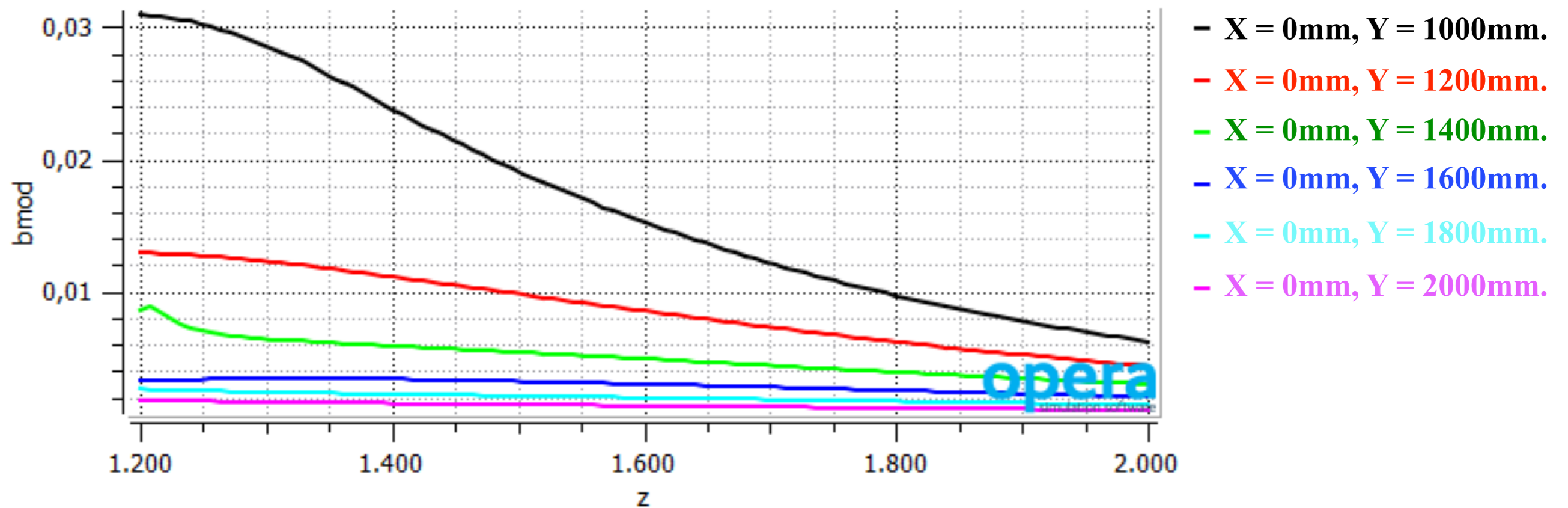

Top view.

RICH photodetector localisation.
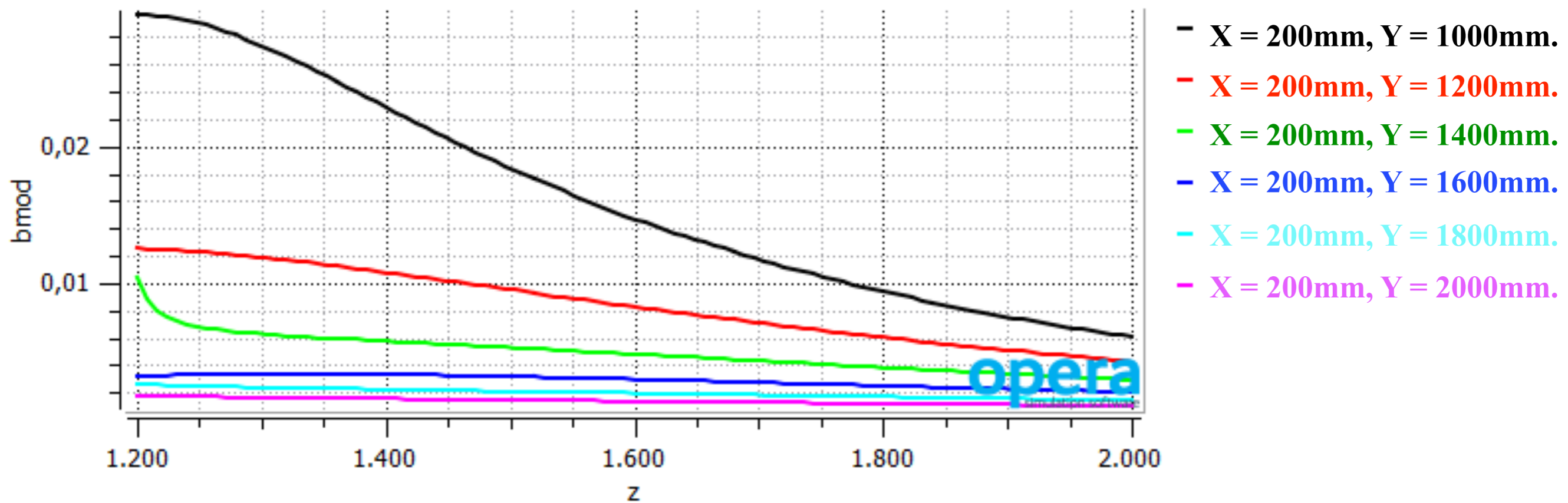

Side view. Half of magnet.

Magnet field distribution in RICH photodetector region.

Magnet field distribution in RICH photodetector region.

Magnet field distribution in RICH photodetector region.
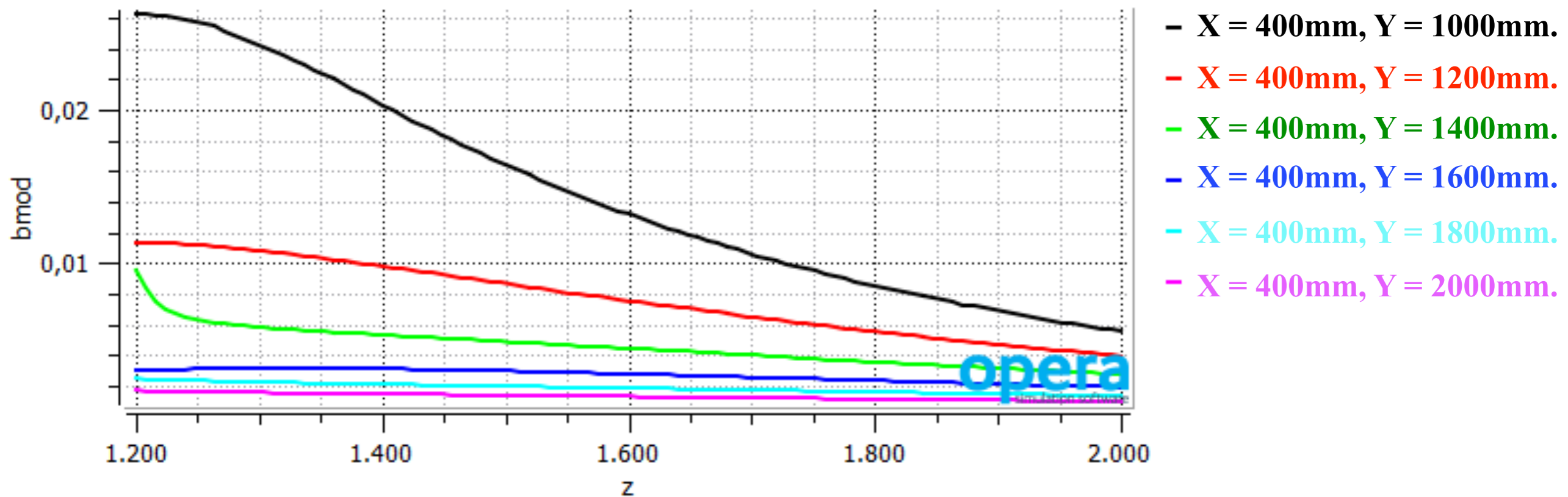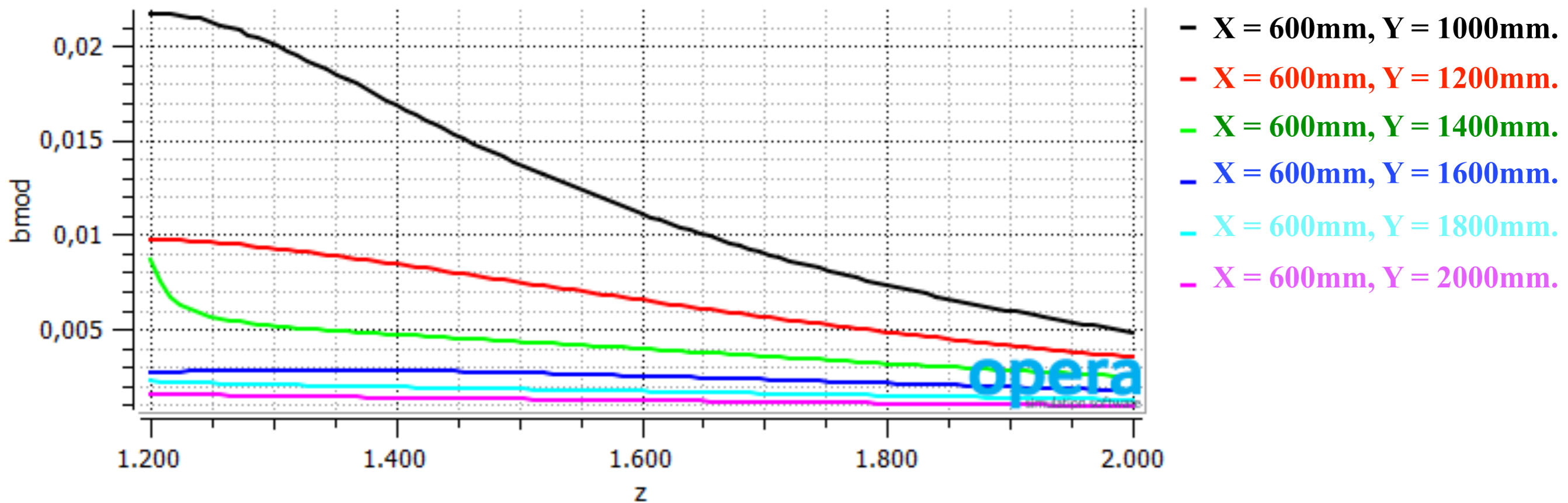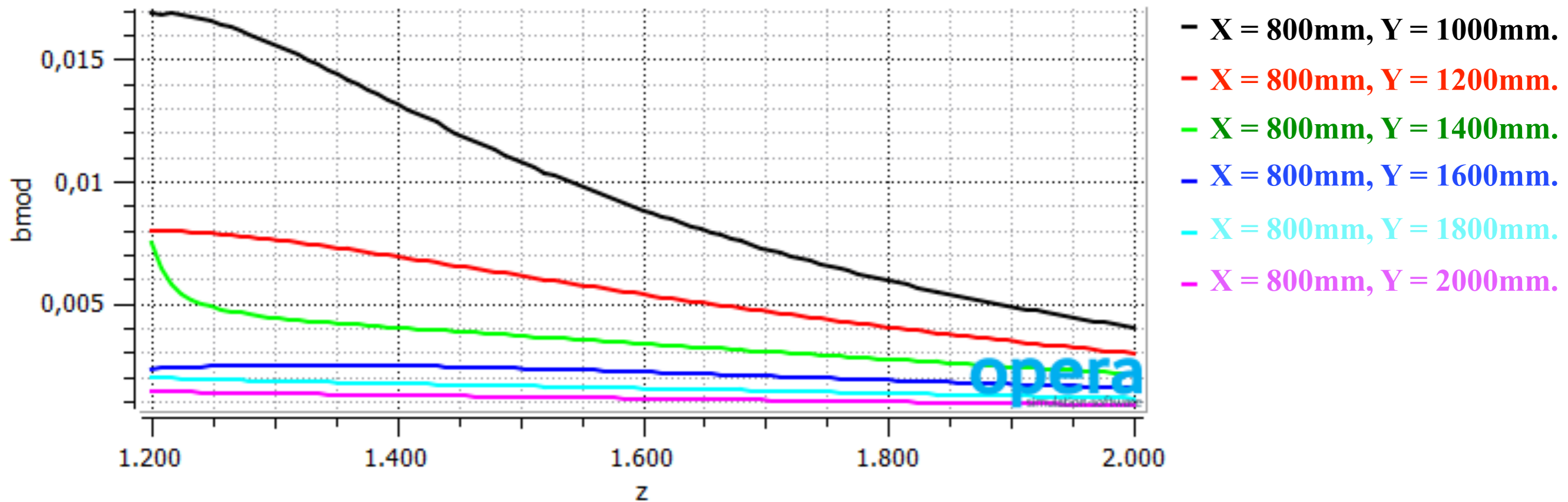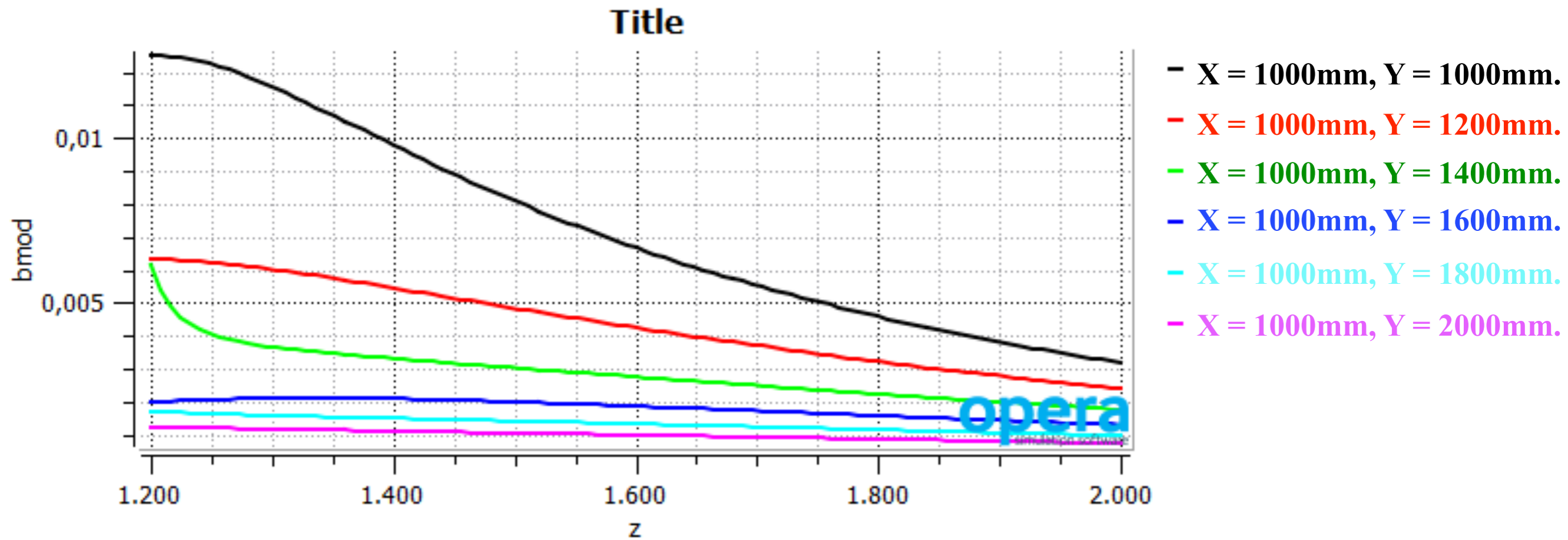
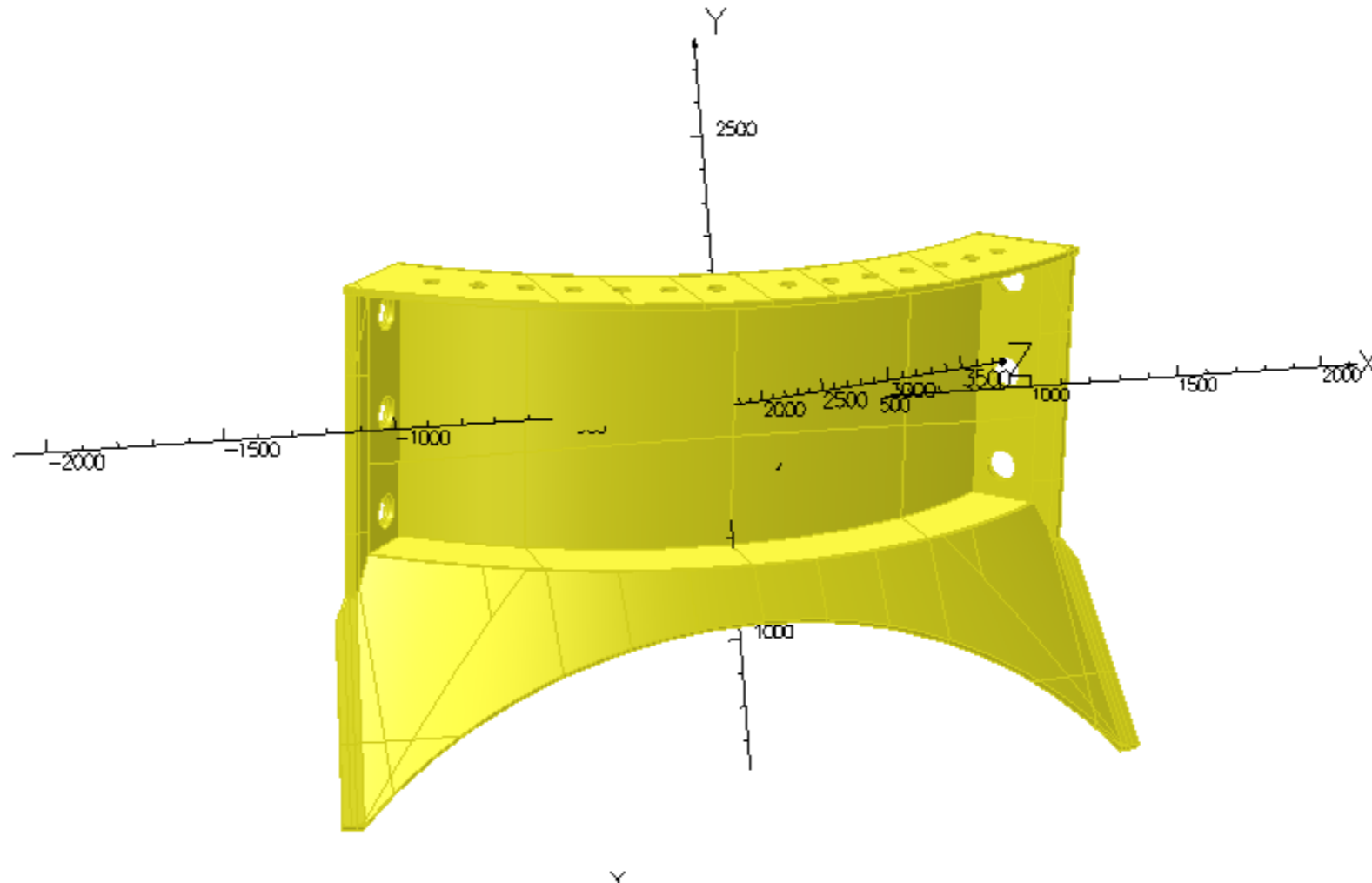# Magnet field distribution in RICH photodetector region.

Magnet field distribution in RICH photodetector region.

Magnet field distribution in RICH photodetector region.

Possible version of shielding box for RICH photodetectors.

- Modelling results have shown that magnet field level in RICH photodetector exceeds the acceptable level by more than 20 times.

- Proper schielding box has to be constructed.

- The quality of field screening of constructed box should be checked by including the box in 3D modelling.

- While constructing the box the beam acceptance should be preserved.