

# Wedge Angles of the Recycling Mirrors

2013/7/16, Yoichi Aso

# Current status

- We did not have a consensus on wedge angles of recycling mirrors
- PR2, PR3, SR2, SR3 are already ordered
  - They will have 2 deg. wedge
  - Not yet fabricated, however, changing the wedge angles now is difficult
- PRM, SRM will be made from brand new substrate
  - We can choose wedge angles
- MC mirrors are fabricated. Supposed to have 2.5deg wedge.

## Problems with large wedge

### Common problems

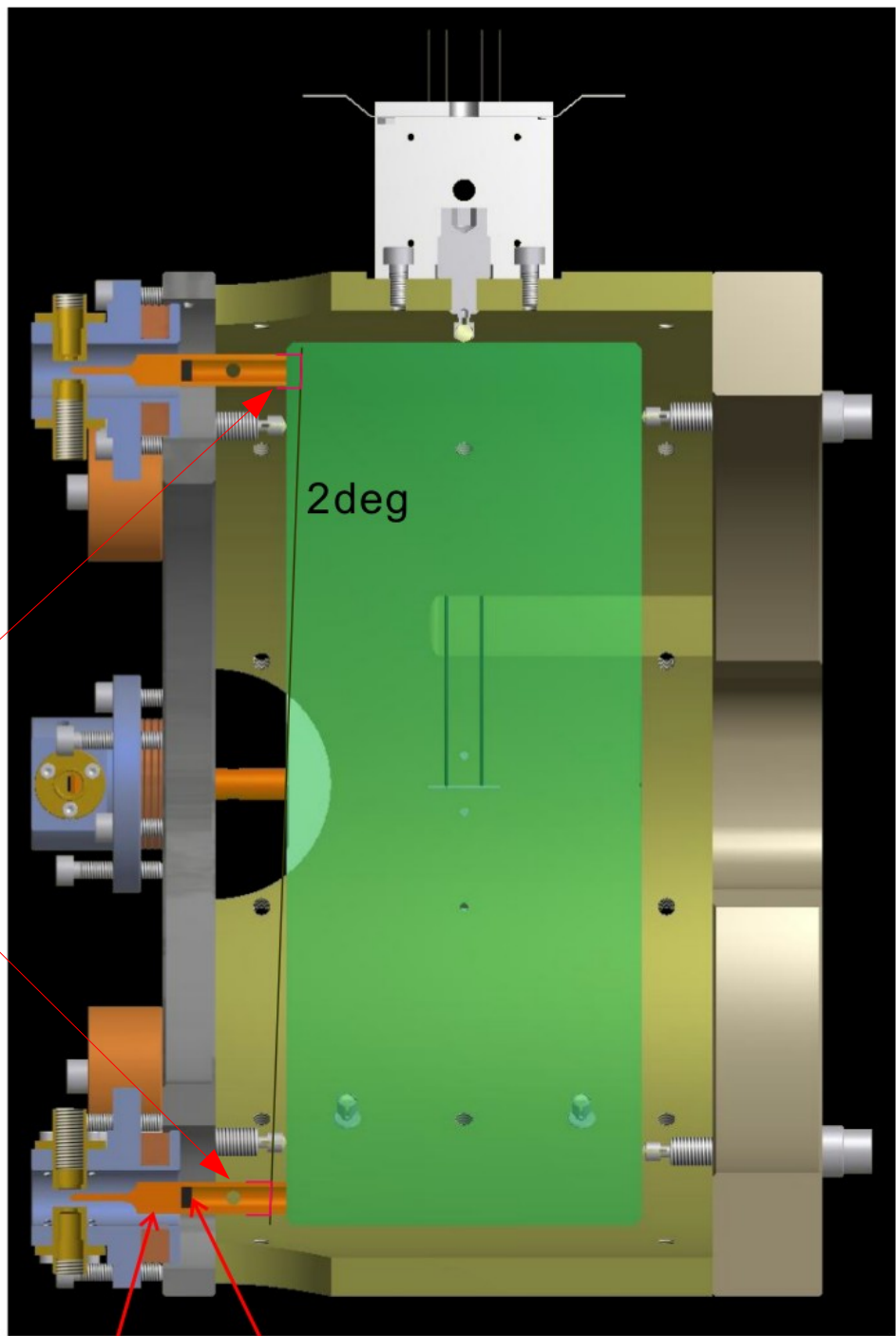
- Redesign of OSEM mounting part

### Horizontal Wedge

- Weight imbalance
  - Increased Inter-DOF couplings ?
    - Not so serious (weaker than existing couplings)
  - Counter weight at the penultimate mass

### Vertical Wedge

- AR reflected beams will split vertically
- No weight imbalance problem



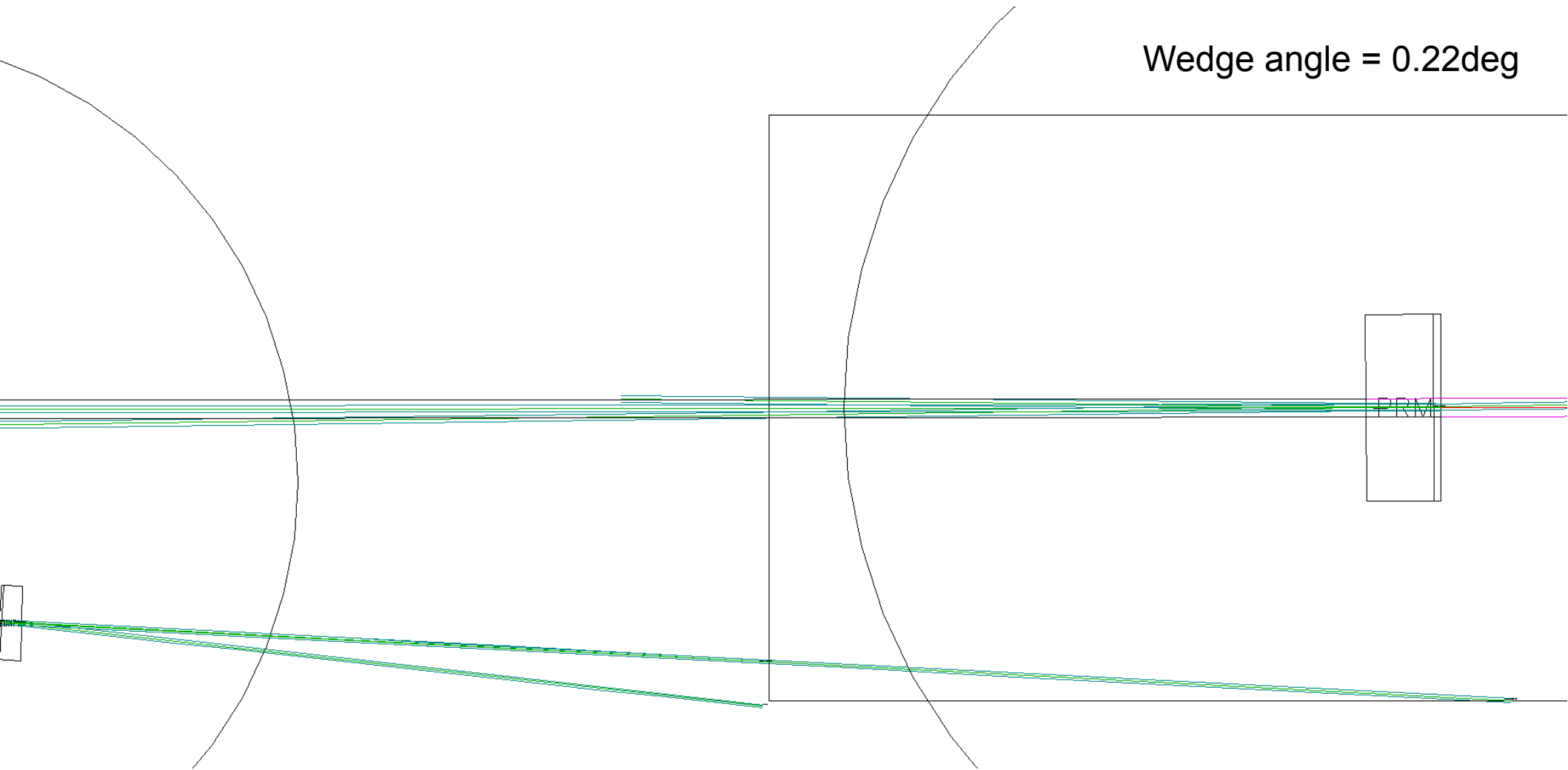
Counter wedge on the magnet mounting base

Flag

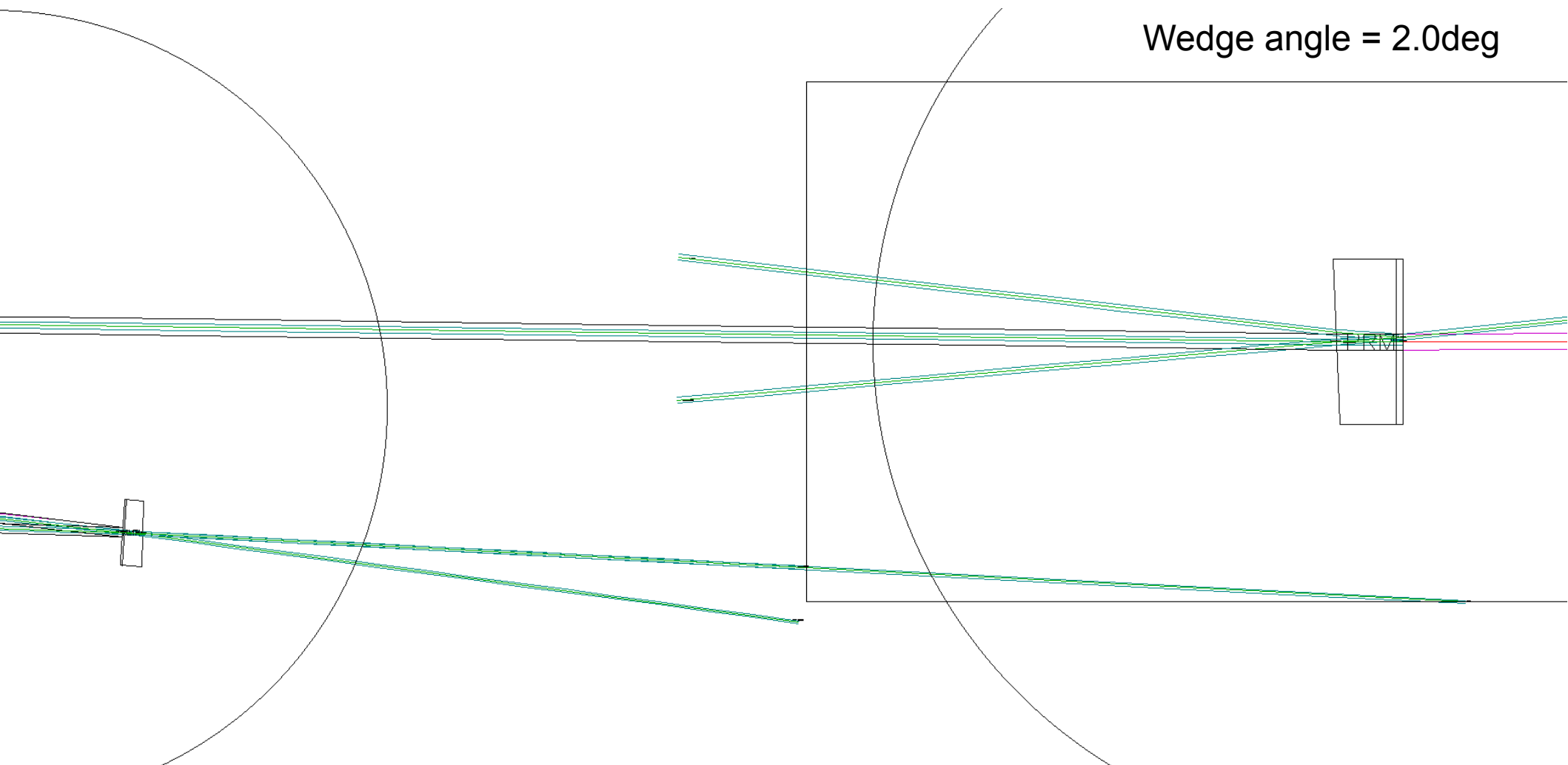
Magnet

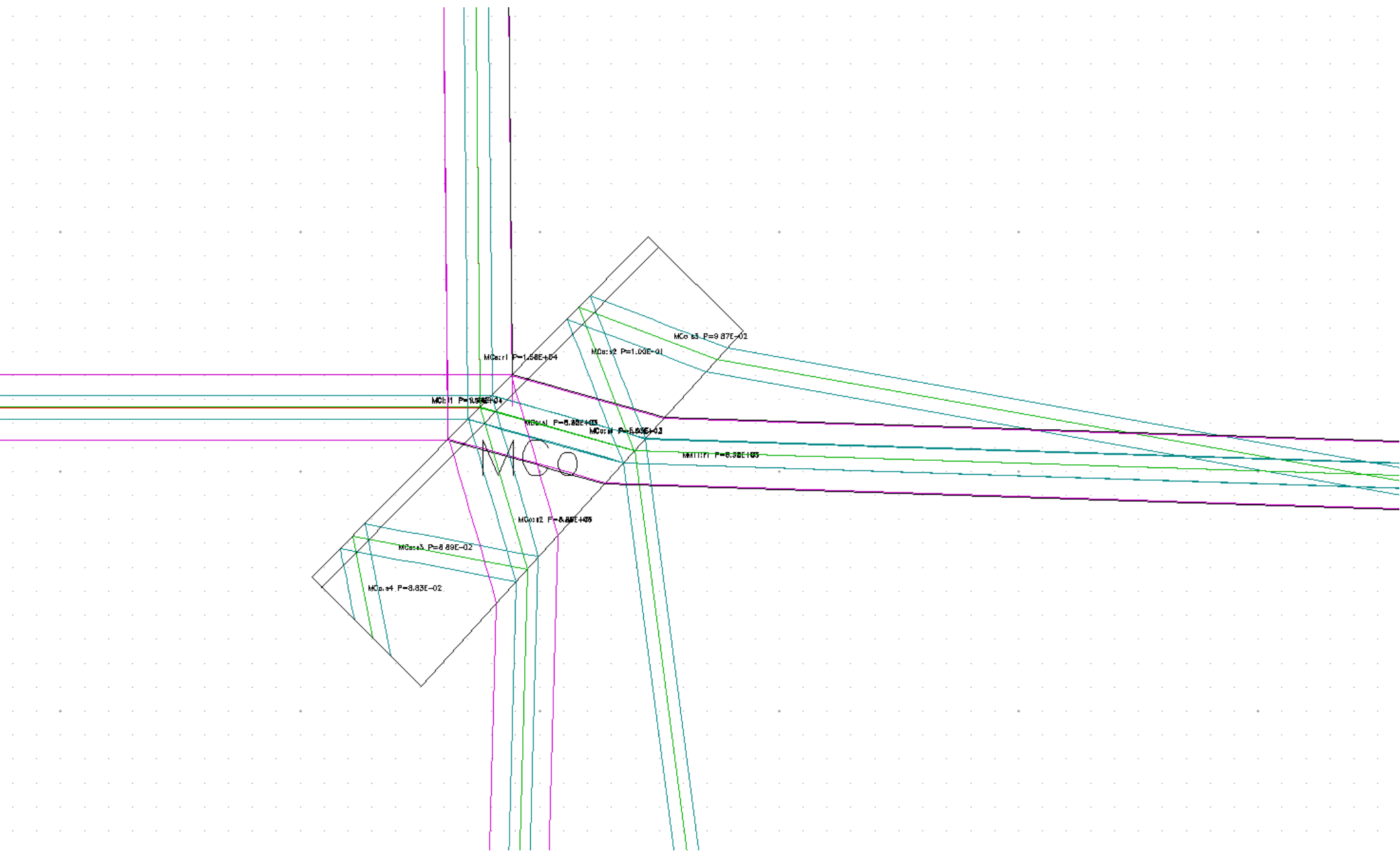
# AR reflected beams at PRM

Wedge angle = 0.22deg



# AR reflected beams at PRM





MCo:01  $P=1.68E+04$

MCo:02  $P=1.00E-01$

MCo:03  $P=9.87E-02$

MCo:11  $P=9.99E-01$

MCo:12  $P=8.32E+03$

MCo:13  $P=5.23E-03$

MCo:14  $P=8.32E+05$

MCO

MCo:15  $P=8.88E+05$

MCo:04  $P=8.89E-02$

MCo:05  $P=8.83E-02$

# Conclusion

- Wedge angles of the PR2, PR3, SR2 and SR3 will not be changed
- Wedge angles of the PRM and SRM will be  $2.0 \pm 0.1$ deg
- Wedge direction will be horizontal.