SPECE simulations for ITER

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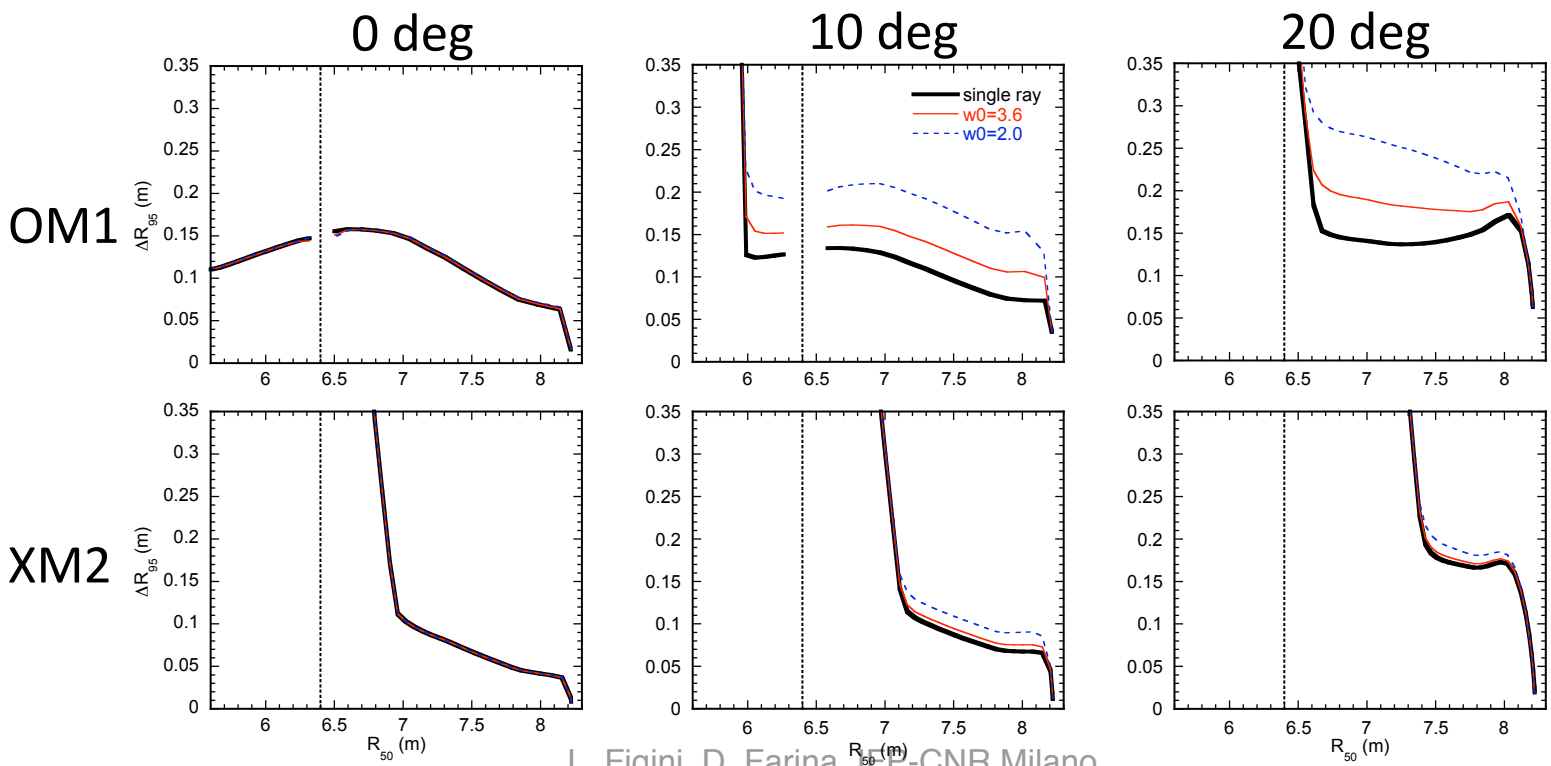
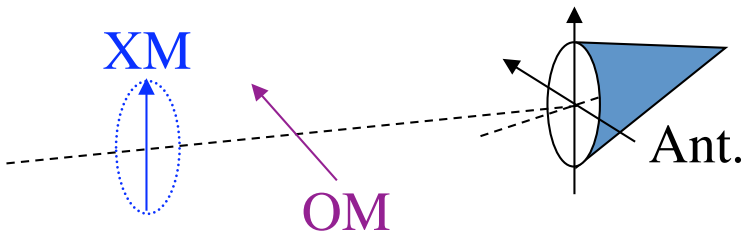
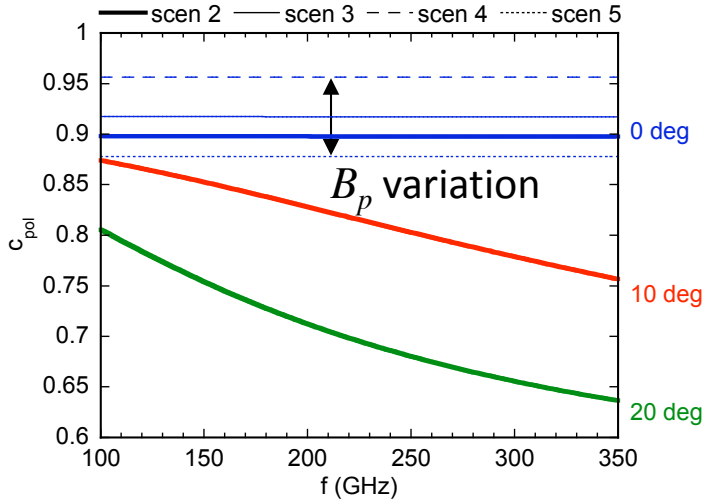
Resolution: Beam Size Effect

- 3 cases considered: **single ray**, JET-like antenna (waist w_0 = 2 cm), ITER-like (w0 = 3.6 cm)
- Effect negligible in perpendicular view
- Bigger impact on OM1 (larger beam divergence)

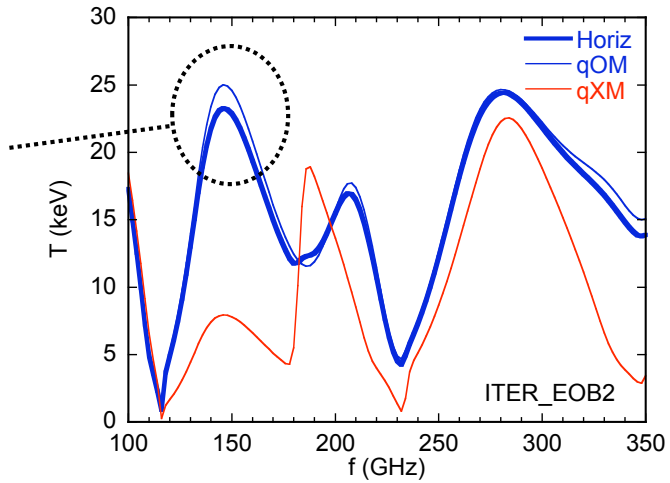


Mode mixing





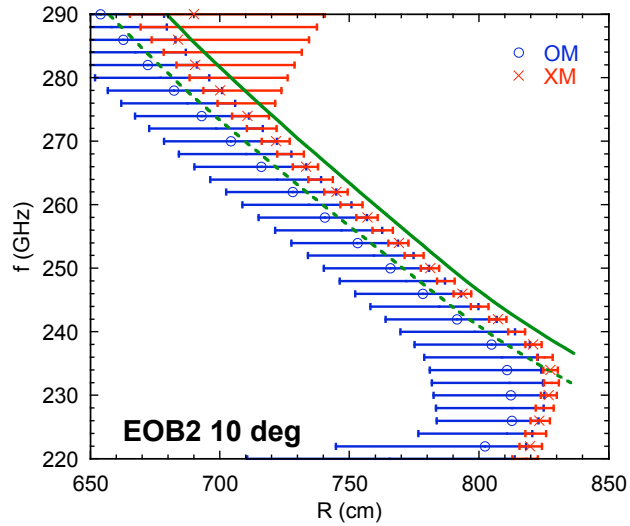
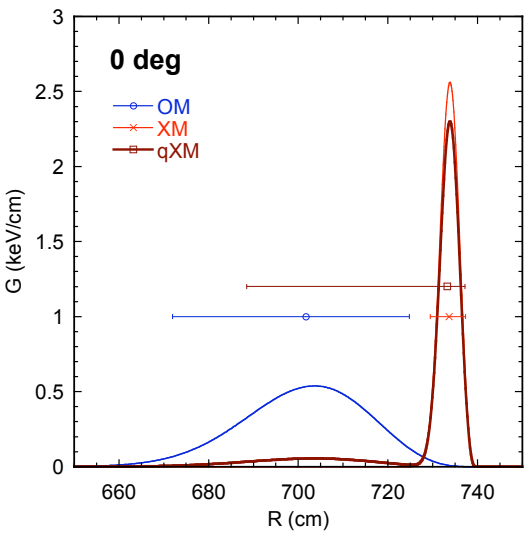
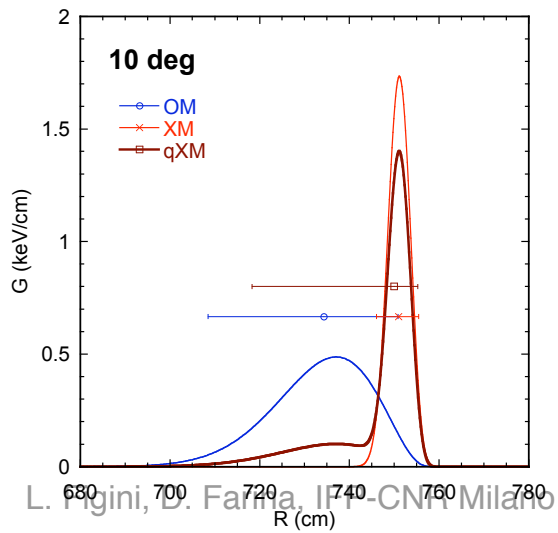
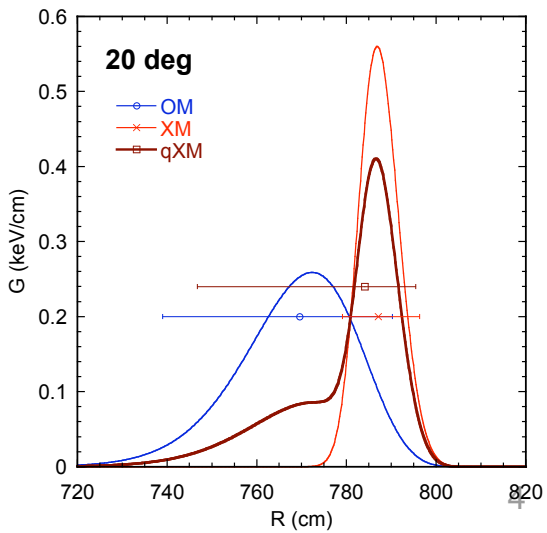
- Due to mismatch between antenna polarization and OM/XM
- High B_p scenarios: large fraction even for perp. view (~10%, can be minimized)
- it must be considered when T_e profile reconstructed using OM1 (lost OM fraction not replaced by XM, that is in cutoff)
- Very important for oblique lines of sight (~35% at 300 GHz, 20 deg)



Mode Mixing: Oblique Resolution

- **Loss of localization** for oblique XM2
- Localization worsened also in **velocity space**
- OM1 unaffected (no XM1 radiation to mix with)

	0 deg		10 deg		20 deg	
	1 ray	w = 3.6	1 ray	w = 3.6	1 ray	w = 3.6
OM	10.6	10.6	9.5	12.8	13.9	17.8
q-OM	10.6	10.6	9.5	12.8	13.9	17.8
XM	6.7	6.7	8.7	9.5	17.9	18.6
q-XM	46.3	46.3	36.2	36.9	45.5	45.9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