

Tutorial: The vibrational spectrum of Xe(O)F₄

Assign the vibrational spectrum of Xe(O)F₄¹

- determine $\Gamma_{vib}(Xe(O)F_4)$
- include diagrams of all the normal modes (bends and stretches)
- complete the table below
- show your working

Infrared (vapour, cm ⁻¹)	Raman (liquid, cm ⁻¹)	Symmetry	Normal Mode
926	920 (pol)	A ₁	Xe=O sym stretch
609	605 (depol)		
576	567 (pol)		
	527 (depol)		
361	364 (depol)		
288	286 (pol)		
	232 (depol)		
	220 (depol)		
159	160 (depol)		

¹ Group Theory for Chemists, Kieran Molloy, 2nd Ed, 2011, p52
Hunt / Tutorial 1