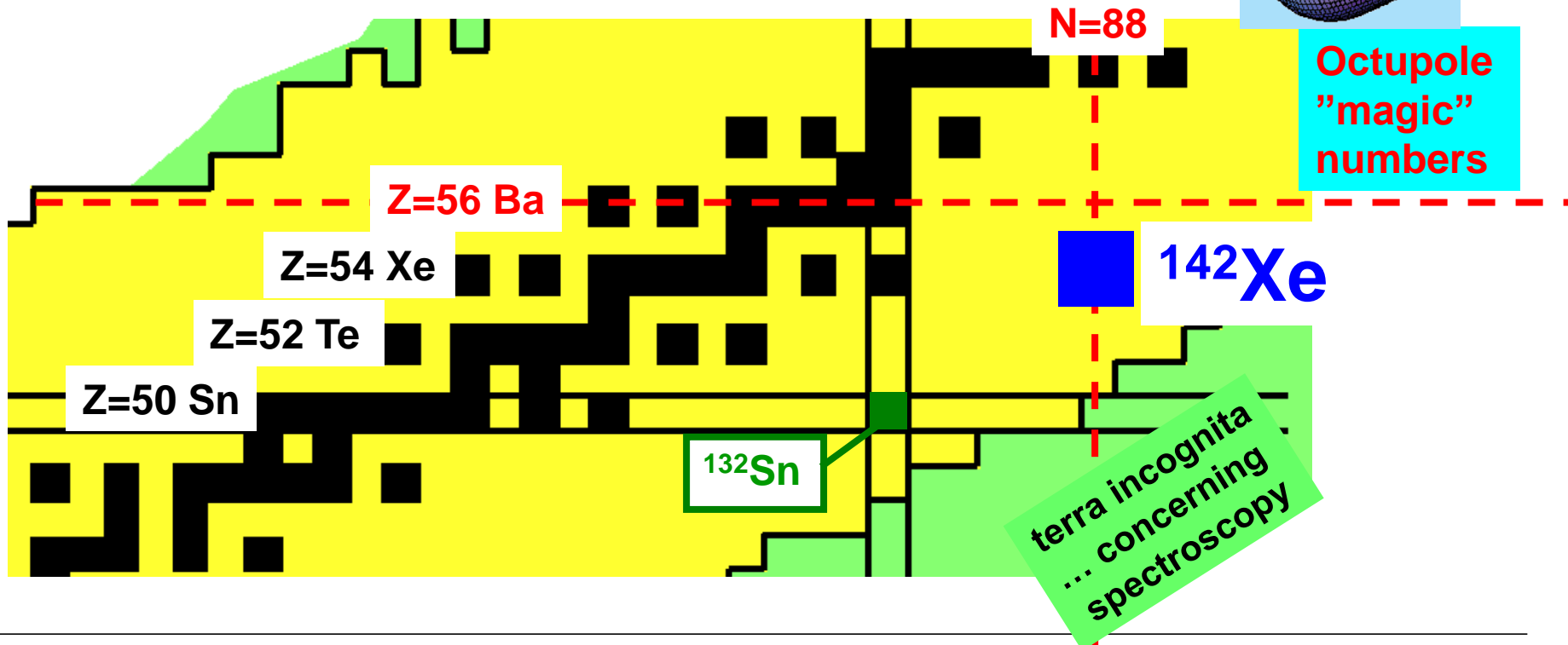
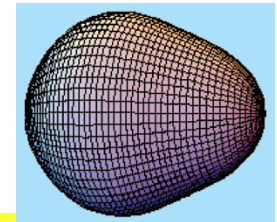


IS548: Evolution of quadrupole and octupole collectivity north-east of ^{132}Sn : the even Xe

Spokespersons: Th. Kröll / G. S. Simpson

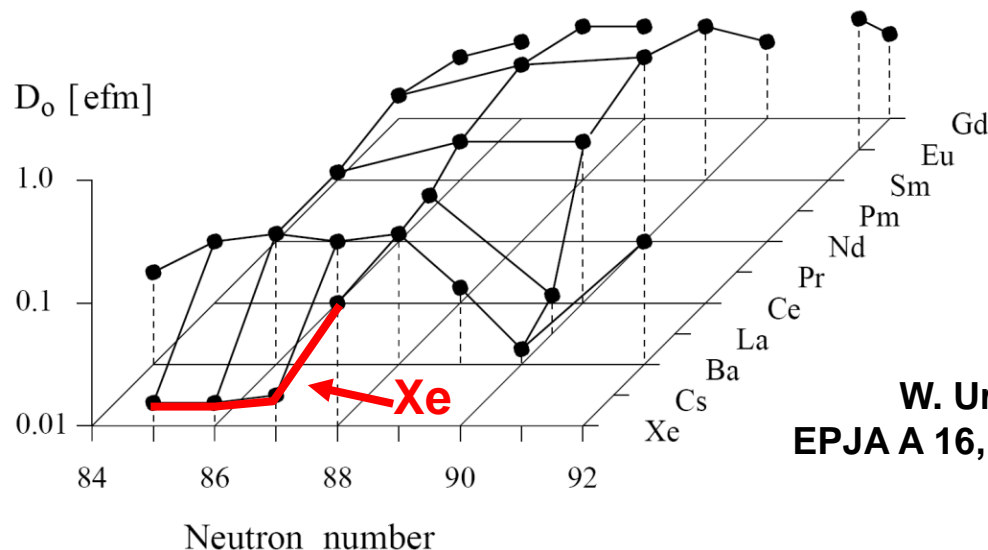
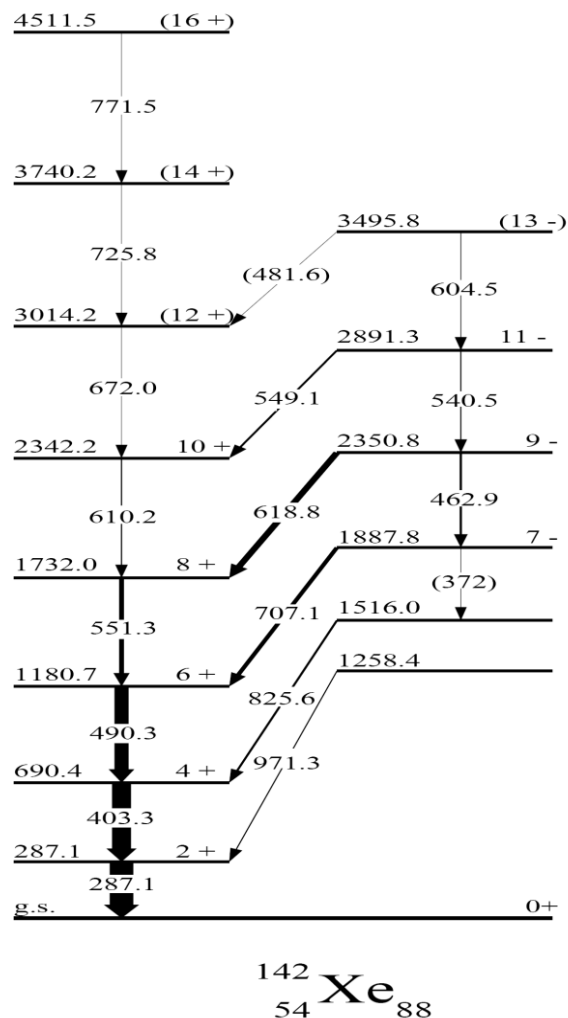
- **Neutron-rich Xe isotopes:**
 - regular behaviour at low spin/excitation energy (IS411)
 - **onset of octupole collectivity** ($\nu f_{7/2} \leftrightarrow \nu i_{13/2}$)



IS548: Evolution of quadrupole and octupole collectivity north-east of ^{132}Sn : the even Xe



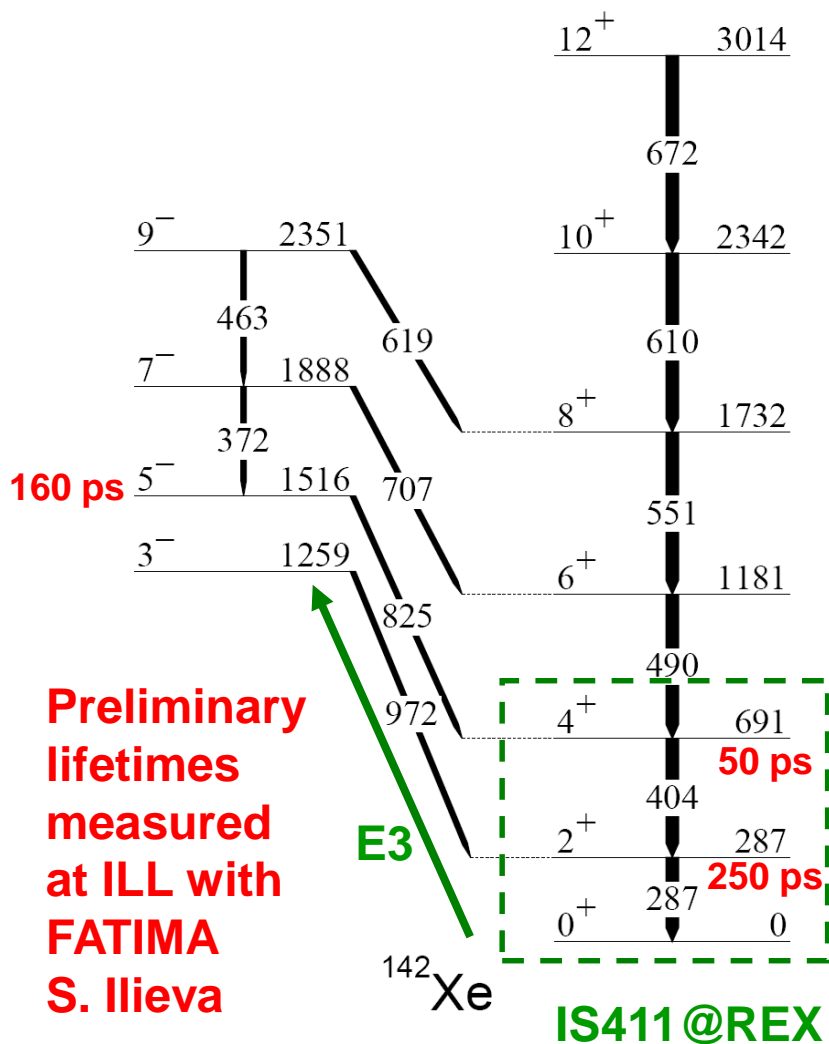
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W. Urban et al.,
EPJA A 16, 303 (2003)

- Increasing D_0 towards N=88 (maximum, “magic”??)
... indirect sign of increasing octupole collectivity?
... octupole collectivity expected to be smaller than in Ba with the octupole “magic” Z=56
- Only indirect determination of D_0 (except ^{140}Xe)
- No octupole states known for ^{144}Xe (N=90)
- **No B(E3) values known in Xe above N=82!**

IS548: Evolution of quadrupole and octupole collectivity north-east of ^{132}Sn : the even Xe



- ... we will have the D_0 value soon for ^{142}Xe from a fast timing experiment at ILL
The long lifetime points towards a decreasing D_0 from ^{140}Xe to ^{142}Xe !?!
- new (or better) lifetimes may come from a recent fast timing experiment at ANL ... ended just a week ago

HOWEVER

- No $B(E3)$ values known in Xe above $N=82$! ... can be determined by Coulomb excitation only

Physics aims

- transition and diagonal quadrupole MEs for higher spin states ($I^\pi > 4^+$)
- $B(E3)$ values

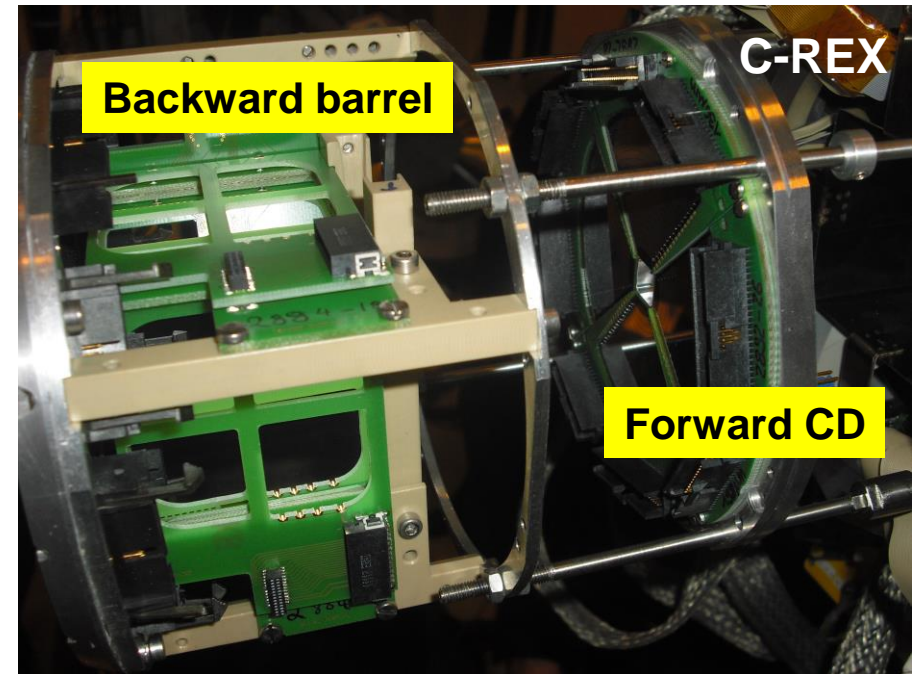
IS548: Evolution of quadrupole and octupole collectivity north-east of ^{132}Sn : the even Xe

- safe Coulex (4.5 MeV/u) on ^{206}Pb

MINIBALL + C-REX

- Large angular range (CMS): 25° - 170°
→ different sensitivities on single/multiple excitation and reorientation
E2/E3 excitation: different ang. dist.
Statistical error / angular bin: $< 10\%$
- **First isotope ^{142}Xe ; yield with NC**
(has been used by IS411)

	$T_{1/2}$ [s]	Yield [$/\mu\text{C}$]	Int [1/s]
^{142}Xe	1.25	$3.7 \cdot 10^7$	10^6



Analysis by PhD student of
Shawn Bishop (TU München)

We request 30 shifts (10 days) of beam time