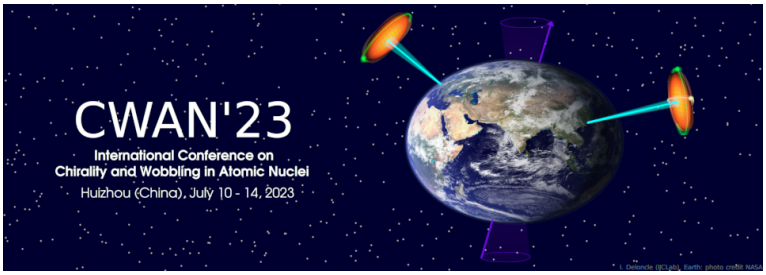

ID de Contribution: **7** Type: **Non spécifié**

Nuclear chirality in cesium isotopes with covariant density functional theory

jeudi 13 juillet 2023 16:00 (30 minutes)

Following the reports of candidate chiral doublet bands observed in cesium isotopes, the possible chiral candidates and the evolution of three-dimensional rotation in $^{120-134}$Cs are investigated within the microscopic three-dimensional tilted axis cranking covariant density functional theory (3DTAC-CDFT). By investigating the evolution of the polar angle θ and azimuth angle φ as a function of rotational frequency $\hbar\omega$, the transition from the planar rotation to the chiral rotation has been found in $^{121-133}$Cs. The corresponding critical rotational frequency $\omega_{\rm crit}$ of the appearance of chiral aplanar rotation decreases as neutron number increases, which can be attributed to the neutrons in (gd) and (sd) shells having smaller angular momentum components along both the short and long axes, and larger components along medium axis, respectively. In comparison, only planar rotation has been obtained in ^{120,134}Cs. With these interpretations, the obtained $I \sim \hbar\omega$ and energy spectra as well as $B(M1)/B(E2)$ values show reasonable agreement with the available experimental data. In addition, the evolution of quadrupole deformation β and triaxial deformation γ are also discussed.

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Classification de Session: Session