

$U(2)$ LIE ALGEBRAIC STUDY OF VIBRATIONAL
SPECTRA OF FULLERENE C_{80}
AND ITS EPOXIDE $C_{80}-O$

*R. Sen*¹, *A. Kalyan*¹, *R.S. Paul*², *R. Das*³,
*J. Choudhury*⁴, *N.K. Sarkar*², *R. Bhattacharjee*⁴

¹Department of Physics, Srikishan Sarda College
(*Hailakandi-788151, India;*
e-mail: rupamsen@ssccollege.net.in),

²Department of Physics, Karimganj College
(*Karimganj-788710, India*),

³Department of Physics, Govt. Degree College
(*Dharmanagar-799251, India*),

⁴Department of Physics, Assam University
(*Silchar-788011, India*)

S u m m a r y

Using the Lie algebraic method, the stretching vibrational energies of fullerene C_{80} & its epoxide $C_{80}-O$ are calculated in the one-dimensional $U(2)$ framework. By constructing the model Hamiltonian with the help of Casimir and Majorana invariant operators in this framework, we calculated the local mode vibrational energy levels of fullerene C_{80} & $C_{80}-O$.