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Research paper

Nonadiabatic eigenfunctions can have conical nodes

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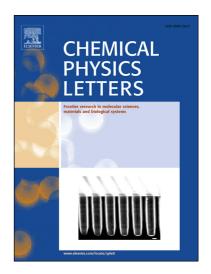
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ACCEPTED MANUSCRIPT

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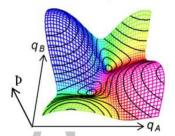
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Graphical Abstract:

Vibrational Amplitude Density



 $\begin{array}{c|c}
-|A\rangle + |B\rangle & |B\rangle & |A\rangle + |B\rangle \\
\hline
\sqrt{2} & \sqrt{2} \\
-|A\rangle & |A\rangle \\
\hline
-|A\rangle - |B\rangle & |A\rangle - |B\rangle
\end{array}$

Electronic Character

Highlights:

- nonadiabatic eigenfunctions can have low dimensionality vibrational nodes
- in 2D, a 0D nonadiabatic node lies at the vertex of a right elliptical cone
- node dimensionality depends on the number of coupled electronic states
- node dimensionality depends on the dimension of the vibrational space
- diffraction or Coulomb explosion might detect low dimensionality nodes

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