Supplementary Information:

Mn₂@Si₁₅: the smallest triple ring tubular silicon cluster

Hung Tan Pham,^{&,∉} Thuy Thu Thi Phan,[§] Nguyen Minh Tam,^{§,§} Long Van Duong,[§] My Phuong Pham-Ho[§] and Minh Tho Nguyen^{§,*}

[&] Computational Chemistry Research Group, Ton Duc Thang University, Ho Chi Minh City, Vietnam

[#] Faculty of Applied Sciences, Ton Duc Thang University, Ho Chi Minh City, Vietnam

^{\$} Institute for Computational Science and Technology (ICST), Ho Chi Minh City, Vietnam

[§] Department of Chemistry, KU Leuven, Celestijnenlaan 200F, B-3001 Leuven, Belgium.

*E-mail: <u>minh.nguyen@chem.kuleuven.be</u>.

This file contains:

- Comparison of the shapes of core s-MOs set of Mn₂Si₁₅ produced by DFT calculations with the wavefunctions obtained by the hollow cylinder model.
- Comparison of the shapes of radial r-MOs set of Mn₂Si₁₅ produced by DFT calculations with the wavefunctions obtained by the hollow cylinder model.
- Comparison of the shapes of tangential t-MOs set of Mn₂Si₁₅ produced by DFT calculations with the wavefunctions obtained by the hollow cylinder model.



Figure S2. Some shapes of s-MOs of Si_{15} triple ring computed using DFT/BP86/6-311+G(d) and the corresponding wave function obtained by solving the Schrödinger equation for a particle in a hollow cylinder model.



Figure S3. Shapes of r-MOs of Si_{15} triple ring computed using bp86/6-311+G(d) and the corresponding wave function obtained by solving the Schrödinger equation for the particle in a hollow cylinder model.



Figure S4. Shapes of t-MOs of Si_{15} triple ring computed using DFT/BP86/6-311+G(d) and the corresponding wave function obtained by solving the Schrödinger equation for the particle in a hollow cylinder model.