

## Carbon sp wires and their coupling to graphene

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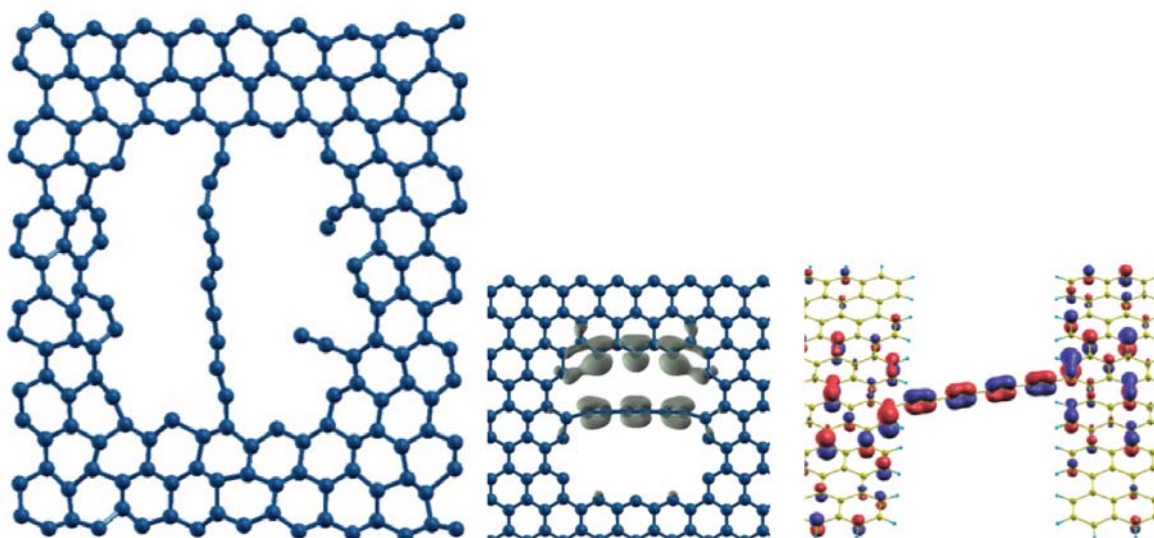
### Abstract

Carbon monoatomic wires, known as carbynes, have recently emerged as a novel form of nanostructured carbon which can be routinely synthesized [1] We present, as an evident demonstration of how far material properties can be changed by barely "nanostructuring" it, a series of theoretical and computational results about the mechanical, electronic, magnetic and vibrational properties of nanostructures based on sp-hybridized carbon [2-6]. We illustrate several implications for possible applications, including nanoelectronics, spintronics, and nano-sensing.

### References

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### Figures



### Caption:

Some systems realized by carbon monoatomic wires, and their coupling to sp<sup>2</sup> carbon:  
i) Structural snapshot from finite-temperature TBMD simulation; ii) example of a localized on-chain electronic state; iii) electronic structure showing  $\pi$ -state magnetism.