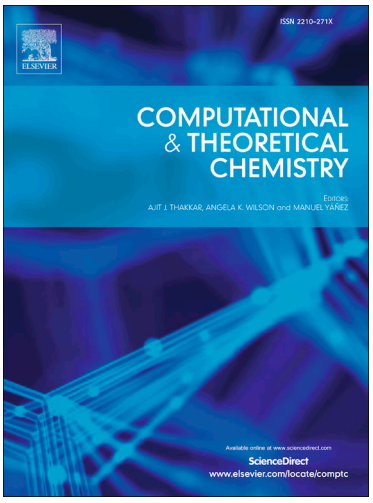

The effect of radial and angular profiles of twisted laser beam on Coronene molecule located off the optical axis

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PII: S2210-271X(18)30102-6
DOI: https://doi.org/10.1016/j.comptc.2018.03.020
Reference: COMPTC 2754

To appear in: *Computational & Theoretical Chemistry*

Received Date: 15 January 2018
Accepted Date: 21 March 2018

Please cite this article as: M. Öncan, F. Koç, D.B. Dereli, K. Köksal, The effect of radial and angular profiles of twisted laser beam on Coronene molecule located off the optical axis, *Computational & Theoretical Chemistry* (2018), doi: https://doi.org/10.1016/j.comptc.2018.03.020

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Abstract

We theoretically investigate the electronic orbital currents and magnetic field induced by twisted light in $C_{24}H_{12}$ named as Coronene molecule. Main reason of induced magnetic field is the transfer of orbital angular momentum of the light into the molecule. We consider that the molecule is much smaller than the size of light spot. The probability of angular momentum transfer and the strength of induced magnetic field depend on the location of the molecule inside laser spot. Our calculations explore the effect of the frequency, orbital angular momentum and the position of Coronene molecule on induced magnetic field.

Keywords:

1. Introduction

There are some spectroscopic studies on coronene which has molecular symmetry and is called as superbenzene. Coronene can be crystallized in different polymorphs using a crystal growth method. The ability to crystallize coronene in different polymorphs provide substantial support e.g. electronic, optical and mechanical properties. Coronene has potential applications in solid-state lasers, field-effect transistors and pharmaceuticals [1].