

Raman spectroscopy of formic acid and its dimers isolated in low temperature argon matrices.

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Rok wydania

2009

Czasopismo

Chemical Physics Letters

Numer woluminu

468

Strony

176-183

DOI

10.1016/j.cplett.2008.12.011

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Raman spectroscopy combined with matrix isolation technique was employed to study formic acid monomer and its dimers. Nine fundamentals of the HCOOH monomer were identified. Additionally, the OH torsion overtone is observed and it is engaged in Fermi resonance with the δ COH mode. Several bands of the cyclic (C_{2h}) dimer were identified and assigned. The less stable open form (C_s) of the dimer was also present in the experiment. Three intermolecular modes for the cyclic and one mode for the open dimer were found in the low frequency region. The experimental studies were supported by harmonic and anharmonic DFT calculations.

Adres publiczny

<https://doi.org/10.1016/j.cplett.2008.12.011>

Strona internetowa wydawcy

<http://www.elsevier.com>