

武汉物数所理论交叉学术交流系列报告

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Tale of A Novel Energetic Material of TKX-50



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Abstract: Our insight into the physicochemical properties of TKX-50, a novel energetic material with excellent performance, will be provided in my report. It contains: (1) It exists three phases for TKX-50. (2) The unusual Protonation of HA^+ is responsible for the relatively low thermal stability of TKX-50. (3) Reversibility of the proton transfer in TKX-50 severs as an absolutely new mechanism for low impact sensitivity. (4) That the two-sided effects of strong hydrogen bonding on the Stability of TKX-50 set a base for designing new EMs with respect to HBs. (5) The repulsion among H^+ results in the enhancement of the thermal stability of TKX-50 by pressure increasing, which much differs from that the thermal decay becomes readier and readier through bimolecular reactions for common EMs like TNT when pressure increases.

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主办单位: 武汉物数所理论与交叉研究部