

**Tuesday, 26 March 2019**

**Amphi B**

**09:30-10:15**

**Plenary lecture 1**

**TKX-50: A new High Explosive Developed at Ludwig-Maximilians Universität (LMU).**



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*"Published over 800 scientific papers in international peer reviewed journals, 28 book chapters, 11 books and holds 12 patents".*

**Abstract.** The research group of Professor Klapötke at LMU is also looking at explosives with improved performances, which would allow to decrease the ordnance dimensions while maintaining their lethality. We aim at developing a new explosive based on molecules with higher performances but with less sensitivity and toxicity. The TKX-50 explosive performances are already better than those of Hexogen (RDX) and Octogen (HMX) with a detonation speed that exceeds by 20% that of current explosives ( $> 9000 \text{ m s}^{-1}$ ). The critical initiation pressure of TKX-50 based explosive formulations is much higher than that for HMX and CL-20 based explosives, which means a much lower shock sensitivity. According to the results, in the preliminary cytotoxicity assay with E.coli TKX-50 does not show any sign of cytotoxicity in the short-term cytotoxicity test. The results of the mutagenic potential investigation indicated that TKX-50 and its metabolites have no mutagenic effects on all tested strains of *S. typhimurium* and *E. coli*.