

ISSN 1

QK2028412

物理化学学报

ACTA
PHYSICO-CHIMICA
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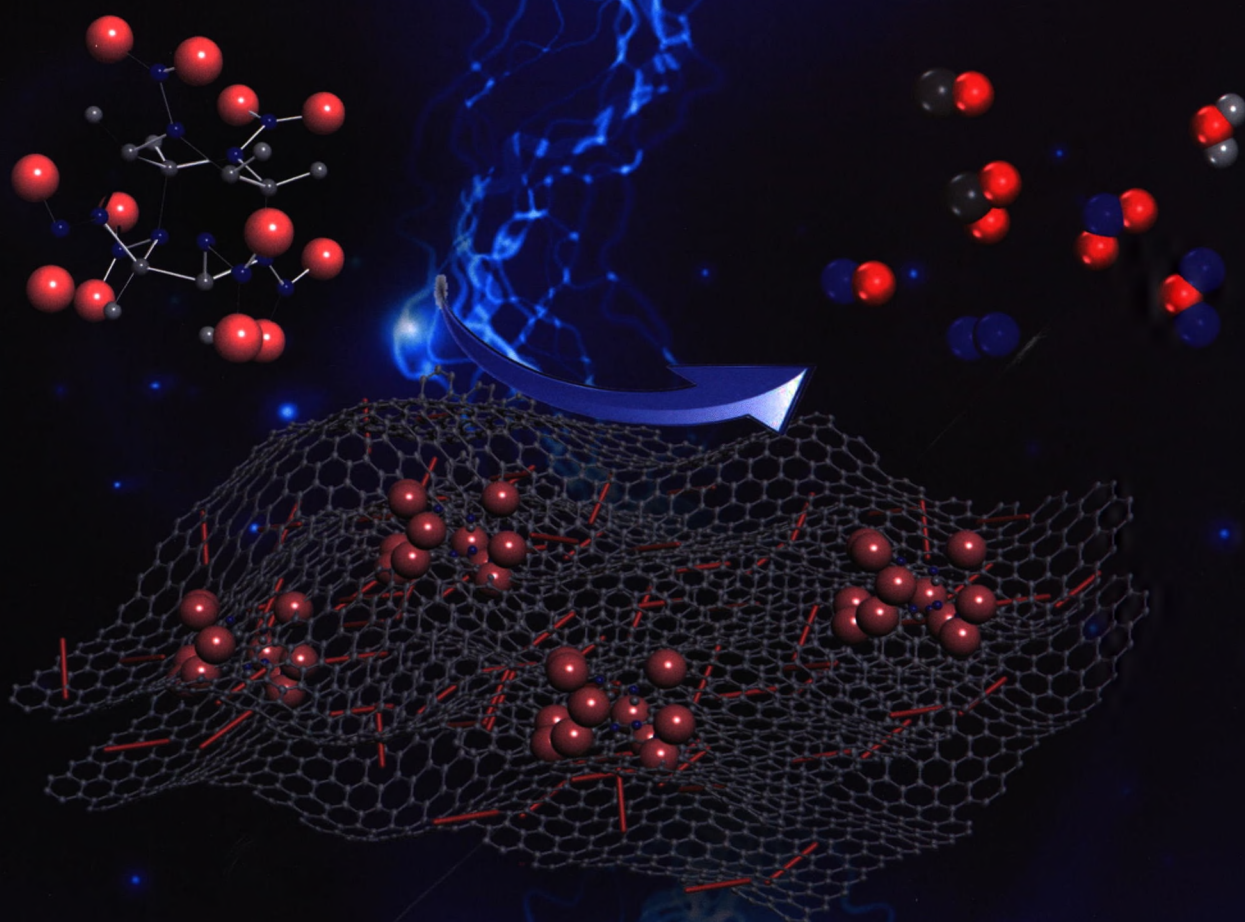
第36卷 第6期 Vol. 36 No. 6 2020

热分析动力学和热动力学特刊

Thermal Analysis Kinetics and Thermokinetics

Guest Editors: Jianji Wang (王健吉)

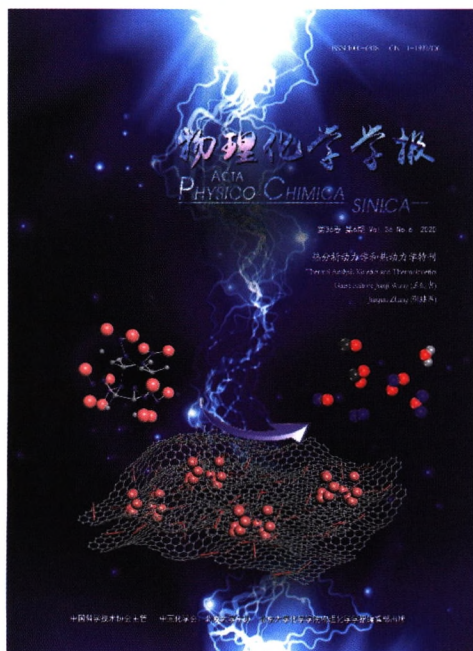
Jianjun Zhang (张建军)



中国科学技术协会主管 中国化学会、北京大学主办 北京大学化学学院物理化学学报编辑部出版

万方数据

COVER



The cover image presents the self-assembled hematite/graphene composite for the thermal decomposition of an energetic material. In article No. 1905048, Zhang *et al.* demonstrated the synergistic reaction between Fe_2O_3 and graphene in enhancing the thermal decomposition and the safety performance of CL-20.

CONTENTS

前言 PREFACE

热分析动力学与热动力学(Thermal Analysis Kinetics and Thermokinetics)
..... 王键吉, 张建军(Jianji Wang, Jianjun Zhang) (1909020)

亮点 RESEARCH HIGHLIGHT

Cr_2O_3 /硝化棉的相容性及热分解机理研究(Compatibility and Thermal Decomposition Mechanism Research of Nitrocellulose/ Cr_2O_3 Nanoparticles)..... 韩布兴(Buxing Han) (1907020)
Flash DSC 跨界表征材料的热导率(Flash DSC Characterizing the Thermal Conductivity of Materials)..... 张建军(Jianjun Zhang) (1907048)

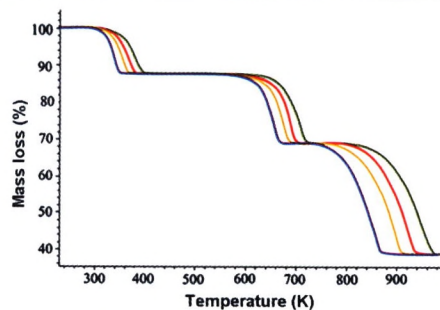
综述 REVIEW

热分析动力学研究方法的新进展
任宁, 王昉, 张建军, 郑新芳

Progress in Thermal Analysis Kinetics

Ning Ren, Fang Wang, Jianjun Zhang,
Xinfang Zheng

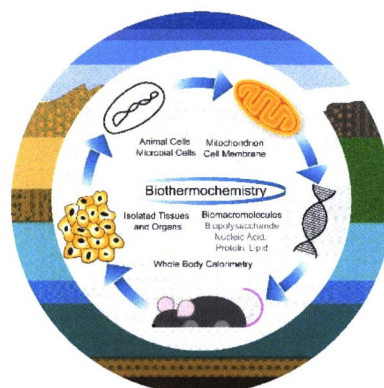
Acta Phys. -Chim. Sin. **2020**, 36 (6), 1905062
doi: 10.3866/PKU.WHXB201905062



Important advances in isoconversion methods are important for further development of thermal analysis kinetics.

Advances in Biothermochemistry and Thermokinetics

Wen Xie, Lianjiao Zhou, Juan Xu,
Qinglian Guo, Fenglei Jiang, Yi Liu



Acta Phys. -Chim. Sin. **2020**, 36 (6), 1905051

doi: 10.3866/PKU.WHXB201905051

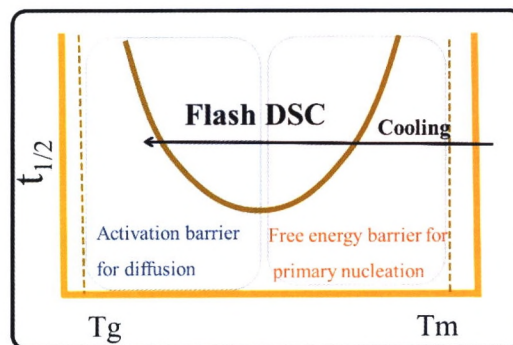
Micro-thermal technology and thermodynamic methods reflect the inherent laws of life-related processes in a macroscopic and essential manner.

超快扫描量热技术表征高分子结晶动力学

何裕成, 谢科锋, 王优浩, 周东山, 胡文兵

Characterization of Polymer Crystallization Kinetics via Fast-Scanning Chip-Calorimetry

Yucheng He, Kefeng Xie, Youhao Wang,
Dongshan Zhou, Wenbing Hu



Acta Phys. -Chim. Sin. **2020**, 36 (6), 1905081

doi: 10.3866/PKU.WHXB201905081

FSC could extend the measurement temperatures for crystallization kinetics to the low-temperature region.

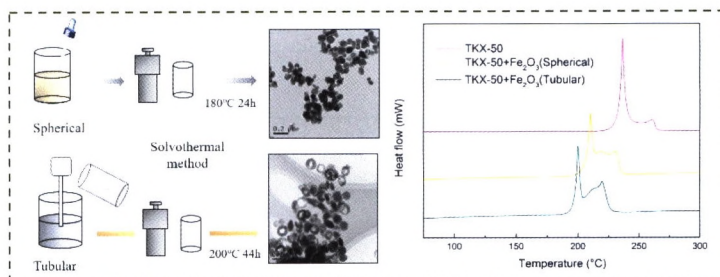
论文 ARTICLE

两种形貌纳米 Fe₂O₃ 对 TKX-50 热分解的催化性能研究

张明, 赵凤起, 杨燕京, 李辉, 张建侃, 马文喆,
高红旭, 李娜

Shape-Dependent Catalytic Activity of Nano-Fe₂O₃ on the Thermal Decomposition of TKX-50

Ming Zhang, Fengqi Zhao, Yanjing Yang,
Hui Li, Jiankan Zhang, Wenzhe Ma,
Hongxu Gao, Na Li



Acta Phys. -Chim. Sin. **2020**, 36 (6), 1904027

doi: 10.3866/PKU.WHXB201904027

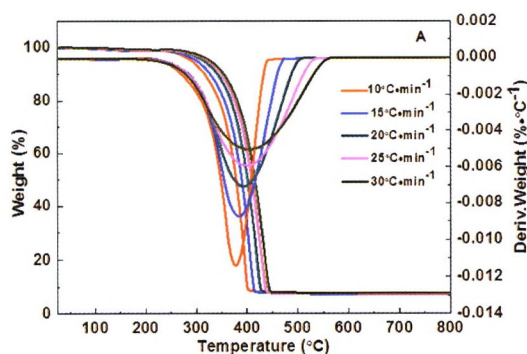
Tubular hollow Fe₂O₃ nanoparticles were successfully fabricated, which presented better catalytic activity for thermal decomposition of TKX-50 than spherical Fe₂O₃ nanoparticles.

BaO·4B₂O₃·5H₂O 纳米材料的制备及其对聚丙烯阻燃性能的热分解动力学方法评价

苗静, 郭睿凤, 刘志宏

Preparation of BaO·4B₂O₃·5H₂O Nanomaterial and Evaluation of Its Flame Retardant Performance to PP by Thermal Decomposition Kinetics Method

Jing Miao, Ruifeng Guo, Zhihong Liu



Acta Phys. -Chim. Sin. **2020**, 36 (6), 1905052

doi: 10.3866/PKU.WHXB201905052

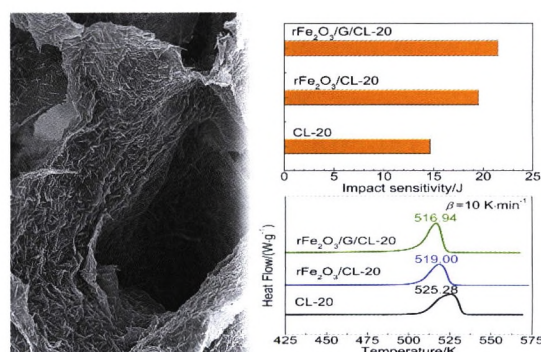
A new prepared BaO·4B₂O₃·5H₂O nanosheet could serve as a potential flame retardant evaluated by unique non-isothermal decomposition kinetic method.

三维氧化铁/石墨烯的构建及其对 CL-20 的热分解性能的影响

张婷, 李翠翠, 王伟, 郭兆琦, 庞爱民, 马海霞

Construction of Three-Dimensional Hematite/Graphene with Effective Catalytic Activity for the Thermal Decomposition of CL-20

Ting Zhang, Cuicui Li, Wei Wang, Zhaoqi Guo, Aimin Pang, Haixia Ma



Acta Phys. -Chim. Sin. **2020**, 36 (6), 1905048

doi: 10.3866/PKU.WHXB201905048

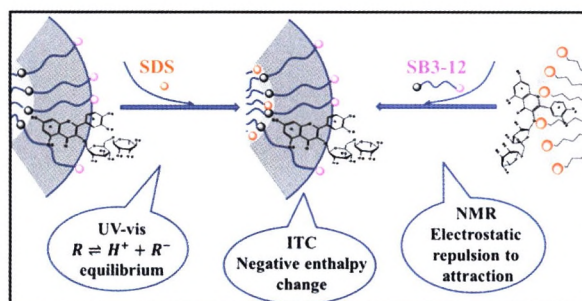
Coupling Fe₂O₃ with graphene is a promising approach to improve the thermal decomposition and safety performance of CL-20.

SDS 对 SB3-12 胶束表面电荷密度的调控作用及对药物增溶的影响

邢肇碧, 过治军, 张雨微, 刘君玲, 王玉洁, 白光月

Regulation of SDS on the Surface Charge Density of SB3-12 Micelles and Its Effect on Drug Dissolution

Zhaobi Xing, Zhijun Guo, Yuwei Zhang, Junling Liu, Yujie Wang, Guangyue Bai



Acta Phys. -Chim. Sin. **2020**, 36 (6), 1906006

doi: 10.3866/PKU.WHXB201906006

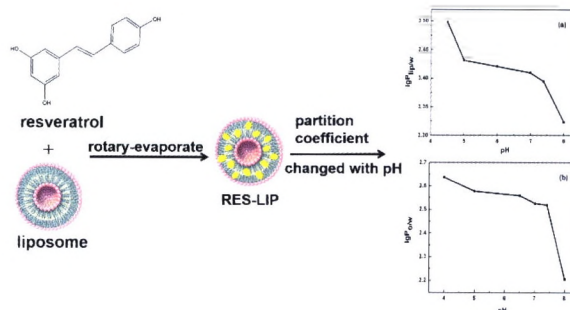
Incorporation of SDS into SB3-12 micelles can continuously increase the negative charge density on the micellar surface, which can be used to modulate the solubilization behavior of drugs.

纳米白藜芦醇脂质体的制备及分配系数测定

张茹, 元琳琳, 孙凯玥, 王珊, 耿丽娜, 张建军

Preparation and Partition Coefficient Determination of Nano-Resveratrol Liposomes

Ru Zhang, Linlin Yuan, Kaiyue Sun,
Shan Wang, Lina Geng, Jianjun Zhang



Acta Phys. -Chim. Sin. **2020**, 36 (6), 1905090

doi: 10.3866/PKU.WHXB201905090

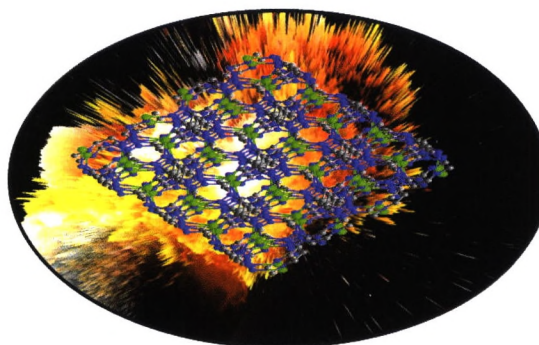
RES-Lip was prepared and characterized; $\lg P_{o/w}$ and $\lg P_{lip/w}$ indicated that the main interaction force between RES and the phospholipid membrane was the hydrophobic effect and ΔG was calculated to be $-17.07 \text{ kJ}\cdot\text{mol}^{-1}$.

三维无溶剂含能 Ag-MOF 的制备、热分解动力学及爆炸性能

乔成芳, 吕磊, 许文凤, 夏正强, 周春生,
陈三平, 高胜利

Synthesis, Thermal Decomposition Kinetics and Detonation Performance of a Three-Dimensional Solvent-Free Energetic Ag(I)-MOF

Chengfang Qiao, Lei Lü, Wenfeng Xu,
Zhengqiang Xia, Chunsheng Zhou,
Sanping Chen, Shengli Gao



Acta Phys. -Chim. Sin. **2020**, 36 (6), 1905085

doi: 10.3866/PKU.WHXB201905085

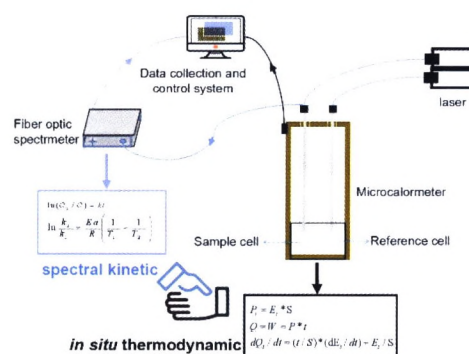
A newly developed 3D solvent-free energetic Ag-MOF exhibits superior heat of detonation and insensitivity compared to HMX.

基于光微热量-荧光光谱联用技术研究光催化热力学和动力学的温度效应

覃方红, 万婷, 邱江源, 王一惠, 肖碧源, 黄在银

Temperature Effects on Photocatalytic Heat Changes and Kinetics via In Situ Photocalorimetry-Fluorescence Spectroscopy

Fanghong Qin, Ting Wan, Jiangyuan Qiu,
Yihui Wang, Biyuan Xiao, Zaiyin Huang



Acta Phys. -Chim. Sin. **2020**, 36 (6), 1905087

doi: 10.3866/PKU.WHXB201905087

In situ thermodynamic and spectral kinetic information for RhB degradation on g-C₃N₄@Ag@Ag₃PO₄ at five temperatures were collected via synchronously monitoring the calorimetric and spectrometric results using photocalorimetry coupled with fluorescence.

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物理化学学报(WULI HUAXUE XUEBAO)第 36 卷第 6 期(2020. 06. 15)

ACTA PHYSICO-CHIMICA SINICA, Vol. 36, No. 6 (June 15, 2020)

月刊(1985 年创刊)

Monthly (First volume appeared in 1985)

编辑出版者	北京大学化学与分子工程学院 《物理化学学报》编辑部	Editor and Publisher:	Editorial Office of Acta Physico-Chimica Sinica (Wuli Huaxue Xuebao)
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印 刷 者	北京科信印刷有限公司	Distributor:	China International Book Trading Corporation (Code No 1443-MO)
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