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See Tiia Jacklin, Perttu Lantto *et al.*, pp. 14759–14766. Image reproduced by permission of Tiia Jacklin from *Phys. Chem. Chem. Phys.*, 2025, 27, 14759.



Inside cover

See Emiliano De Santis, Carl Caleman *et al.*, pp. 14767–14776. Image reproduced by permission of Erik G. Marklund from *Phys. Chem. Chem. Phys.*, 2025, 27, 14767.

EDITORIAL

14702

PCCP 25th anniversary collection

Bee Hockin* and Anouk M. Rijs

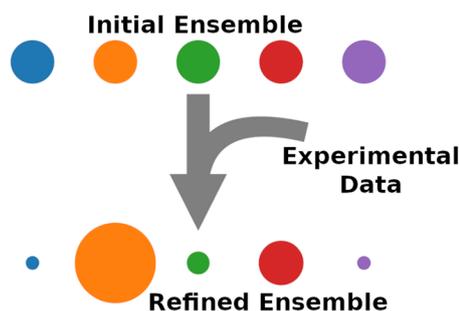


PERSPECTIVES

14704

Combining simulations and experiments – a perspective on maximum entropy methods

Johannes Stöckelmaier and Chris Oostenbrink*



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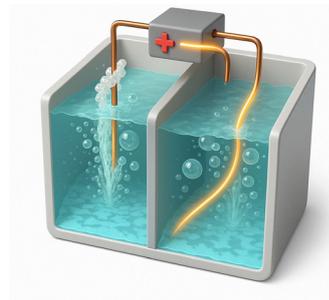
Fundamental questions
Elemental answers



PERSPECTIVES

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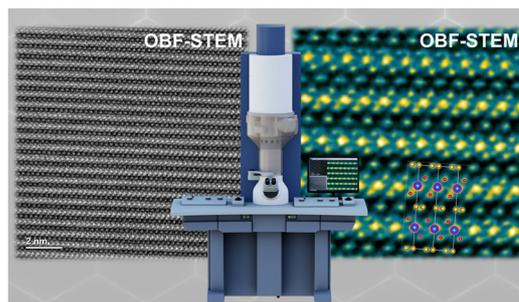
New perspectives addressing application challenges in concentration cells

Zeshuo Meng,* Runlin Zhang, Haoteng Sun,*
Jingchen Zhang, Xiliang Gong and Zhengyan Du*

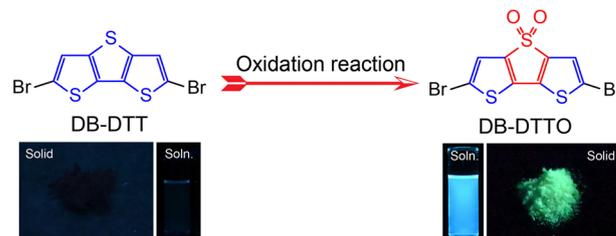
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Probing the atomic arrangement of honeycomb layered oxides via optimum bright-field scanning transmission electron microscopy (OBF-STEM)

Titus Masese,* Godwill Mbiti Kanyolo,*
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Tomohiro Saito

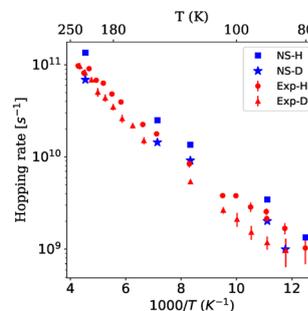
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Oxidation reduces spin-orbital coupling to achieve robust fluorescence emission in halogen-substituted dithieno[3,2-*b*:2',3'-*d*]thiopheneHuimin Liu, Zeyan Zhuang, Yawen Hou, Yujiao Zhu,
Ruofeng Xu, Bin Chen,* Rong Hu* and Zujin Zhao*

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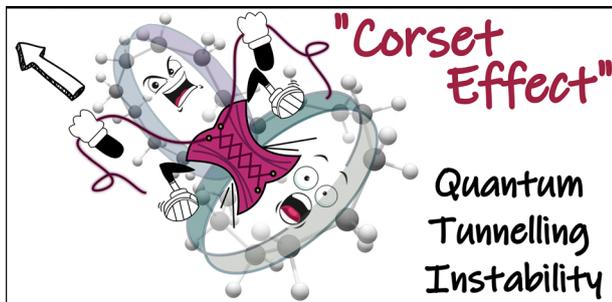
Incoherent tunneling surface diffusion

E. E. Torres-Miyares* and S. Miret-Artés



COMMUNICATIONS

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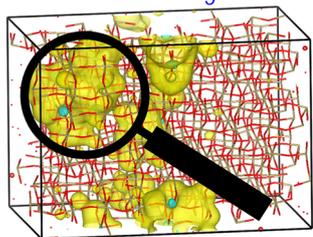


How small can a catenane be, if we consider quantum tunnelling?

Sindy Julieth Rodriguez-Sotelo,
Juan Julian Santoyo-Flores and Sebastian Kozuch*

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How do polarons form in NaTaO_3 ?

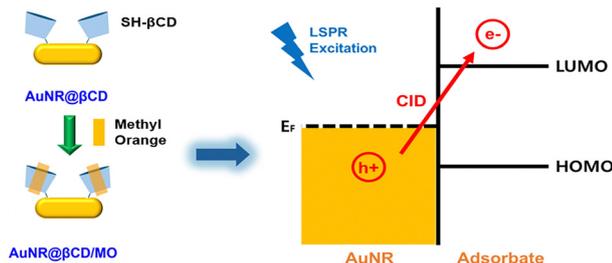


Quantum-chemical molecular dynamics study of polaron formation in perovskite NaTaO_3 as a water-splitting photocatalyst

Hiroki Uratani* and Hiroshi Onishi

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CID Using Host-Guest Interactions on AuNR

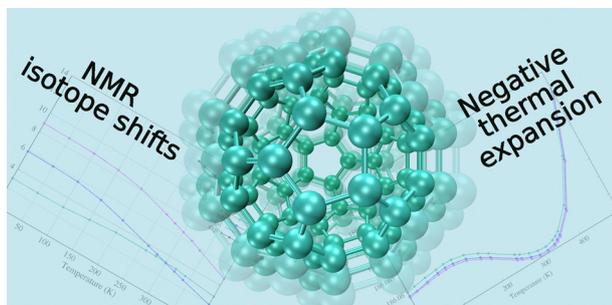


Thiolated β -cyclodextrin-based host-guest interactions: investigating and tuning chemical interface damping in single gold nanorods

Minji Kim, Yola Yolanda Alizar,
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Quantum-mechanical treatment of thermal effects on the structure and ^{13}C NMR shielding of buckminsterfullerene C_{60}

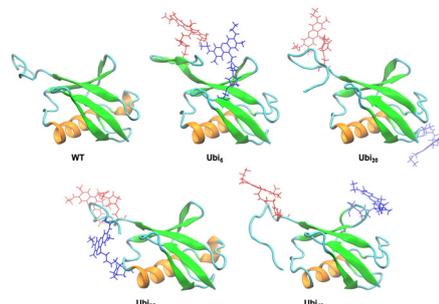
Tiia Jacklin,* Petr Štěpánek and Perttu Lantto*



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Structural stability of chromophore-grafted Ubiquitin mutants in vacuum

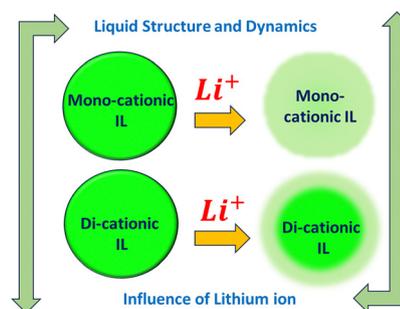
Emiliano De Santis,* Thomas Mandl, Jocky C. K. Kung, Khon Huynh, Steven Daly, Lorenza A. D'Alessandro, Luke MacAleese, Charlotte Uetrecht, Erik G. Marklund and Carl Caleman*



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Probing lithium-ion induced micro-environment changes in pyrrolidinium-based mono-cationic and di-cationic ionic liquids

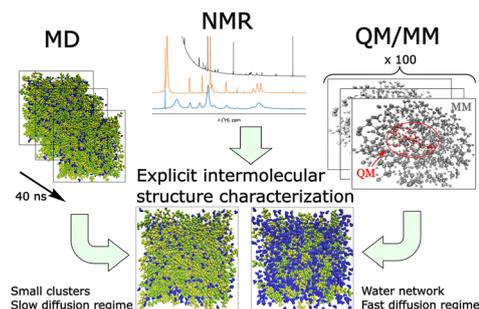
Amita Mahapatra, Umesh D. Chowdhury, Subahakanta Parida, Sahadev Barik, Joyoti Ghosh, B. L. Bhargava and Moley Sarkar*



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Intermolecular organization in aqueous mixtures of choline lysinate studied *via* NMR and molecular dynamics/quantum mechanics

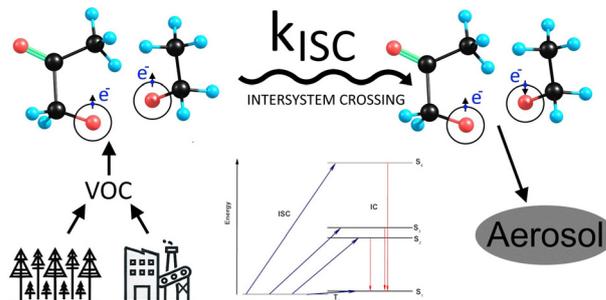
Einaras Sipavičius, Lukas Mikalauskas, Vytautas Klimavicius and Kęstutis Aidis*



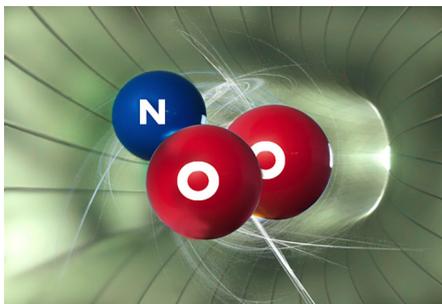
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Predicting intersystem crossing rate constants of alkoxy-radical pairs with structure-based descriptors and machine learning

Rashid R. Valiev,* Rinat T. Nasibullin, Hilda Sandström, Patrick Rinke, Kai Puolamäki and Theo Kurten*



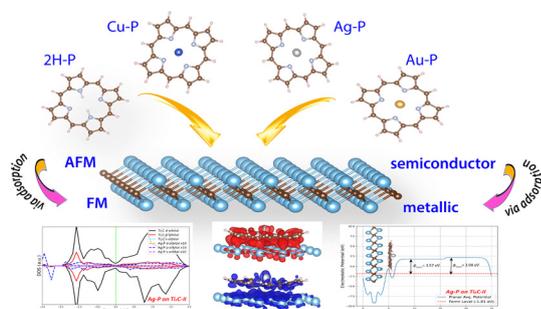
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Exploring quantum tunneling in heavy atom reactions using a rigorous theoretical approach to the dynamics: formation of NO + O from the N + O₂ atmospheric reaction

Fabrizio Esposito, Pablo Gamallo, Miguel González* and Carlo Petrongolo

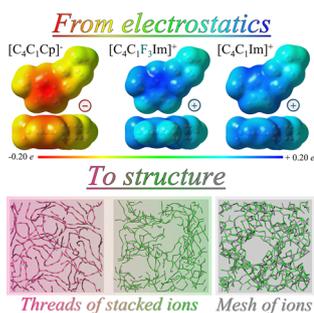
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Magnetic transition and work function modulation of Ti₂C MXene via porphine adsorption

Pınar Kaya, Çağıl Kaderoğlu,* Ethem Aktürk and Handan Arkin

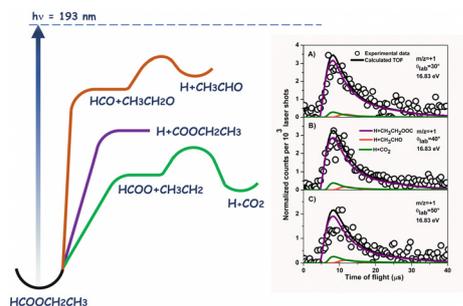
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Rational design of halo-imidazolium-based ionic liquids: tailoring the charge distribution to mimic the structure of real charge inverted analogues

Lois Morandeira,* Tiago F. C. Cruz, Pedro T. Gomes, José N. Canongia Lopes and Karina Shimizu*

14851



Photodissociation dynamics of ethyl formate at 193 nm-based synchrotron radiation and *ab initio* calculations: hydrogen elimination and secondary dissociations

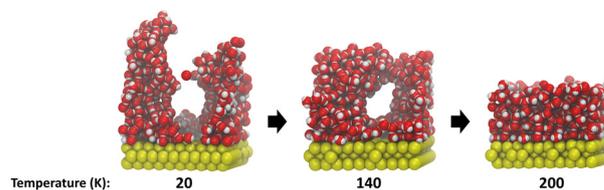
Orlando Dominguez-Flores, Rodrigo Navarro-Severiano, David Ochoa-Resendiz, Oscar Quiroz-Cardoso, Annia Rodriguez-Hernandez, Jesus Porcayo-Calderon, Francisco Javier Hernandez-Campos, Shih-Huang Lee, Ramon Hernandez-Lamonedada and Alfredo Quinto-Hernandez*



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A molecular dynamics study of the effect of annealing temperature on the structure of ASW

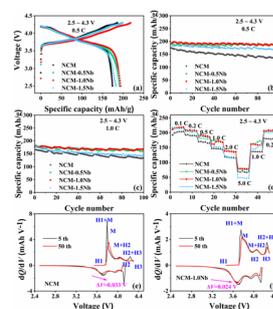
Zachary Amato,* Thomas F. Headen, Pierre Ghesquière and Helen J. Fraser



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Enhancement of the cycling stability of the nickel-rich cathode material $\text{LiNi}_{0.9}\text{Co}_{0.01}\text{Mn}_{0.09}\text{O}_2$ via Nb^{5+} doping

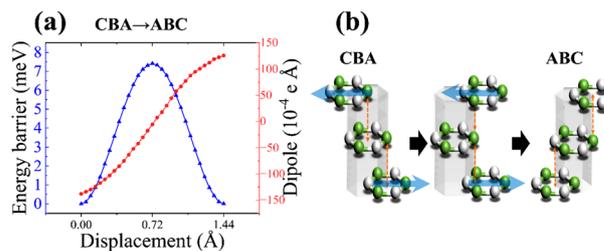
Jiatai Wang,* Chao Fan, Yuanyuan Li, Yan Tan, Xuchao Zhang, Jiting Li, Hongyun Liu, Xiaohong Ma, Changjuan Deng and Jian Li



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Sliding ferroelectricity of multilayer h-BN

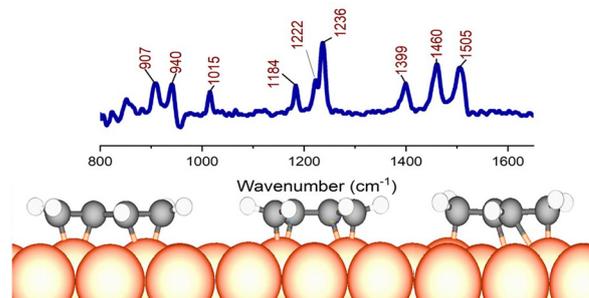
Zijun Li, Le Fang, Hui Zhang,* Wei Wu* and Wei Ren*



14906

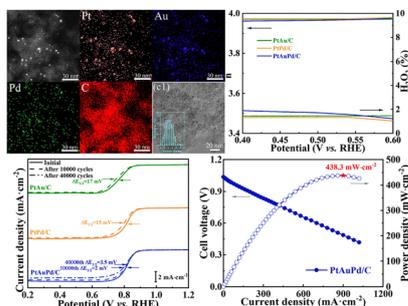
Structure of chemisorbed 1,3-butadiene on the $\text{Cu}(111)$ surface

Mohammad Rahat Hossain, Ahmad Arshadi, Ye Xu* and Michael Trenary*



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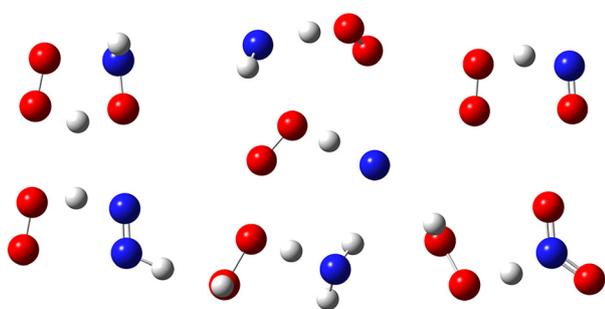
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Electrocatalytic activity of PtAuPd/C nano multi-principal element alloy catalyst towards oxygen reduction reaction

Hui Li, Zhiwei Zhang, Lianke Zhang, Hualiang Ni, Haiying Qin,* Jing Zhang,* Hongzhong Chi and Junjing He

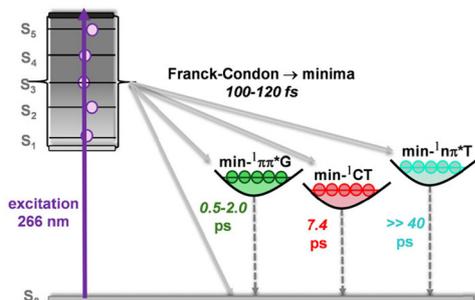
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Overlooked hydroperoxyl radical reactions in ammonia oxidation under combustion conditions

Kfir Kaplan, Michal Keslin and Alon Grinberg Dana*

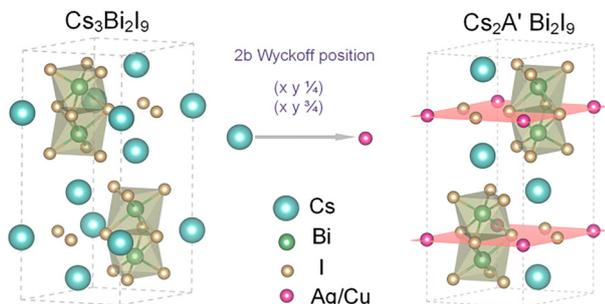
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Ultrafast dynamics of the UV-induced electronic relaxation in DNA guanine–thymine dinucleotides: from the Franck–Condon states to the minima of the potential energy surfaces

Vasilis Petropoulos, Lara Martinez-Fernandez,* Lorenzo Ubaldi, Margherita Maiuri, Giulio Cerullo,* Evangelos Balanikas and Dimitra Markovitsi*

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Enhanced charge transport in A-site ordered perovskite derivatives $A_2A'Bi_2I_9$ ($A = Cs$; $A' = Ag, Cu$): a first-principles study

Shuhan Li, Siyu Song, Peng Lv,* Shihao Wang, Jiawang Hong and Gang Tang*

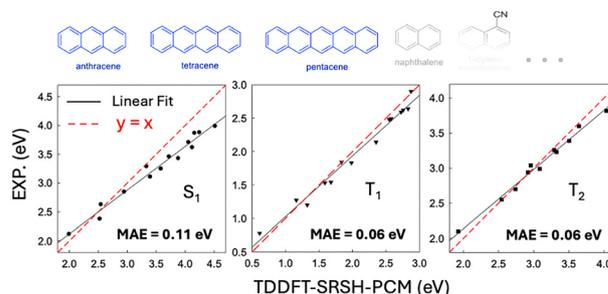


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14957

Accurate prediction of the energies of the lowest excited states, S_1 , T_1 , and T_2 , of chromophores for improving solar cell applications

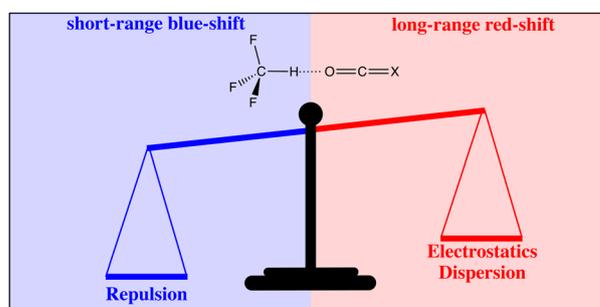
Muhammet Erkan Köse, Roshan Khatri and Barry D. Dunietz*



14966

Tetrel, nonconventional hydrogen bonds, and noticeable role of dispersion in complexes of fluoroform and carbon dichalcogenides

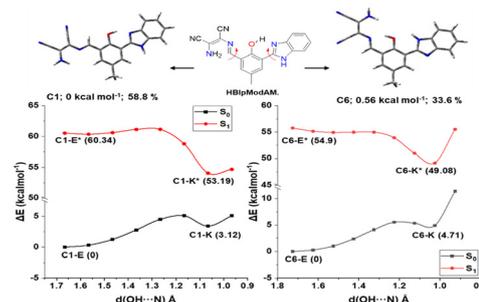
Thanh-Nam Huynh, Nguyen Thi Minh Nguyet, Bui Duc Ai and Nguyen Tien Trung*



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Excited-state relaxation mechanisms of Janus-type proton in benzimidazole-conjugated aminomaleonitrile: single or double proton transfer?

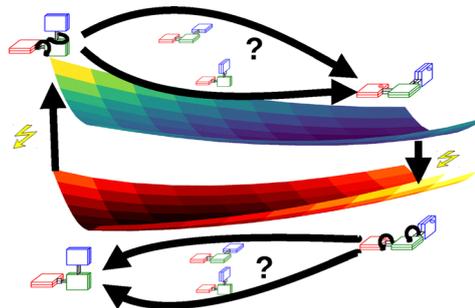
Sonika, Sukhvinder Dhiman, Ashutosh Sharan Singh, Vijay Luxami and Gulshan Kumar*



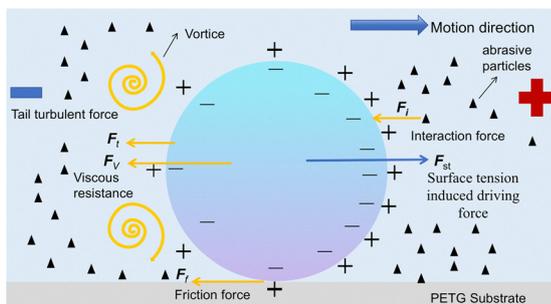
14985

Surface hopping simulations reveal deactivation pathways of a charge transfer system with planarizing and twisting motion

Julia Haberhauer,* Sebastian Mai, Leticia González and Christof Hättig*



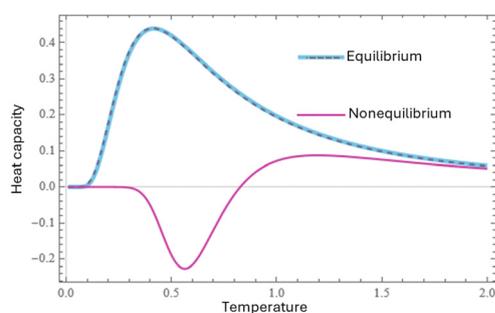
14999



Dynamic behaviour of electrically driven liquid metal droplets in abrasive particle suspensions

Baoqi Feng, Kaixiang Li, Yapeng Ma and Lei Zhang*

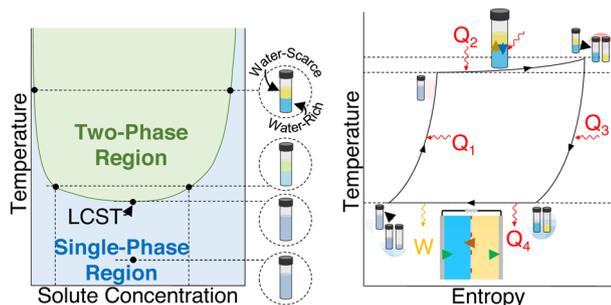
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Negative specific heats: where Clausius and Boltzmann entropies separate

Lander Bogers, Faezeh Khodabandehlou and Christian Maes

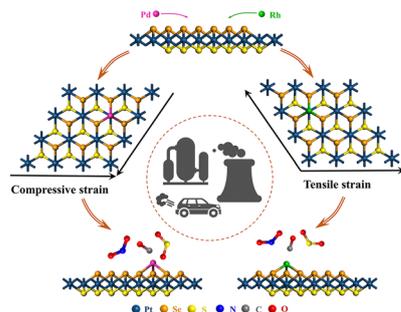
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Thermodynamic properties of lower critical solution temperature (LCST) mixtures for application in energy–water systems

Jordan D. Kocher, Ahmed Mahfouz, Jesse G. McDaniel and Akanksha K. Menon*

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Synergistic enhancement of gas sensor performance in Janus PtSse monolayer via Pd/Rh decoration and strain engineering: a first-principles investigation

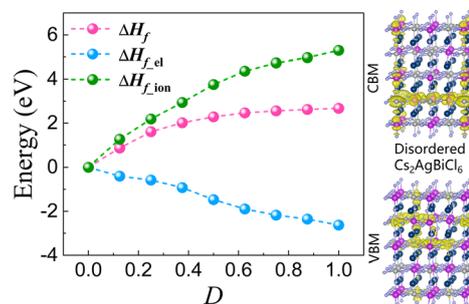
Xiao Wang, Yang Li,* Xinglian Yang, Rongji Zhang, Rongbiao Xiang, Junyu Chen, Zhilong Peng, Qiang Fu* and Jiamu Cao*



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Elucidating the role of lone-pair ns^2 electrons on B-site cation disordering in double halide perovskites $\text{Cs}_2\text{AgBiCl}_6$ and $\text{Cs}_2\text{AgInCl}_6$

Jingting Wei, Jiayin Wu, Yibin Yang, Le Huang* and Bin Li*



15055

Modeling the Monty Hall decision problem with reaction kinetics

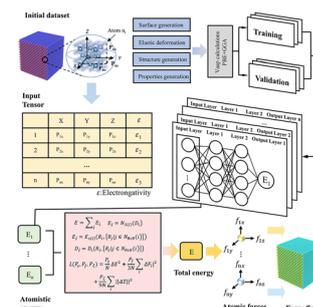
Oliver Steinbock* and Wen Zhu*



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Machine learning molecular dynamics reveals atomistic mechanisms of ion beam damage in calcium fluoride

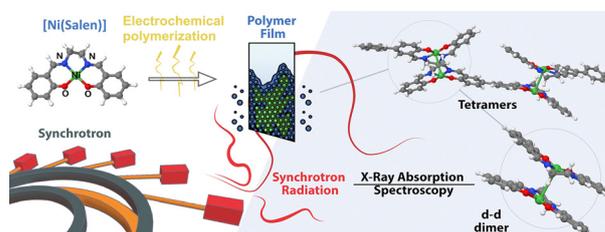
Zixuan Chen, Jixiang Ding, Shayu Song, Rongtao Shen, Jianguo Zhang,* Junfeng Xiao and Jianfeng Xu



15080

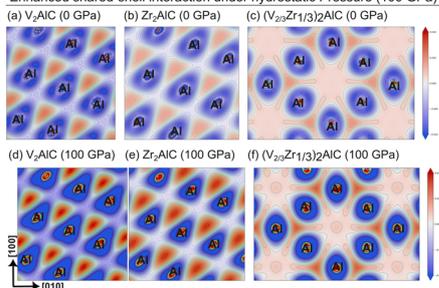
The structure of the NiO_2N_2 coordination center in the $[\text{Ni}(\text{Salen})]$ complex and its polymer: a comparative study by X-ray absorption spectroscopy and quantum-chemical calculations

Petr M. Korusenko,* Olga V. Petrova, Anatoliy A. Vereshchagin, Oleg V. Levin, Evgeny V. Khramov, Ratibor G. Chumakov, Mikhail A. Soldatov, Konstantin P. Katin, Alexander S. Konev and Alexander S. Vinogradov



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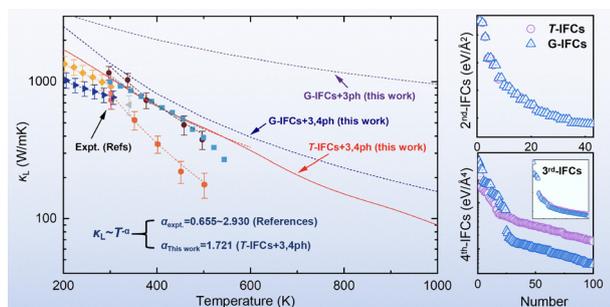
Enhanced shared-shell interaction under hydrostatic Pressure (100 GPa)



First-principles study of the structural, electronic, elastic, and high-pressure properties of the $(V_{2/3}Zr_{1/3})_2AlC$ i-MAX phase and M_2AlC ($M = V, Zr$) MAX phases

Rashid Khan, Qingmin Zhang and Shafqat Hussain Shah*

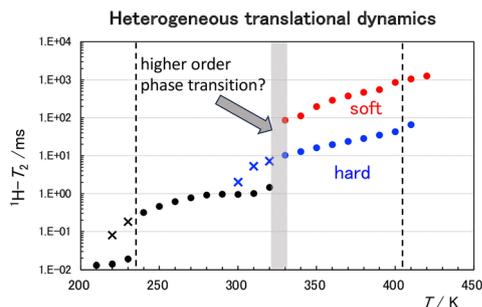
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Accurately predicting the thermal conductivity of boron arsenide considering the temperature-induced phonon anharmonic renormalization: a critical revisit

Yongjun Wu, Yan Zhang and Zhen Tong*

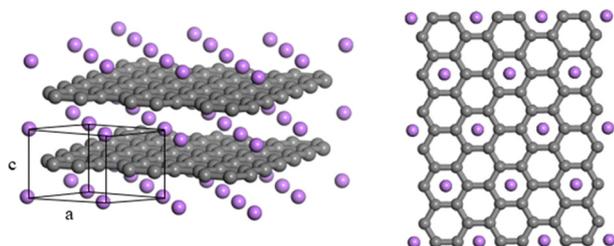
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Nuclear magnetic resonance study of the relationship between phase behaviour and reorientational and translational dynamics in N,N -diethylpyrrolidinium bis(fluorosulfonyl)amide with a plastic crystal phase

Keiko Nishikawa,* Kozo Fujii and Masahiro Yoshizawa-Fujita*

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Tuning the thermal conductivity of lithium intercalated graphite through temperature, strain, and interlayer twist angles

Kaiyu Yang, Na Di, Yu Liu* and Guangzhao Qin

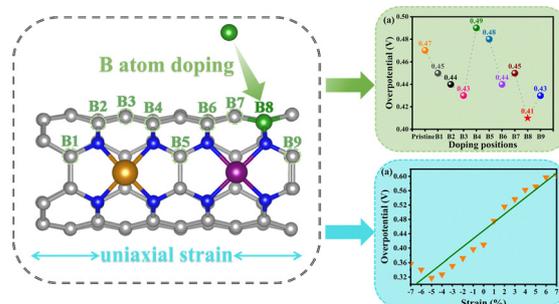


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Improving the activity of the oxygen evolution reaction on $\text{TiN}_4\text{-CoN}_4$ embedded carbon nanotubes *via* boron atom doping and applying uniaxial strain

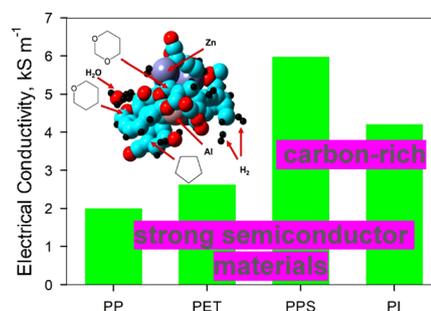
Xing-Chen Ding, Bao-Tong Cong, Wen-Hui Zhao, Zi-Qiang Deng, Long-Hui Li, Shi-Yao Liu, Zhen-Kun Tang* and Hui Zhang*



15154

Insulator and electrode materials marginally influence carbonized layer conductivity in metalized-film capacitors

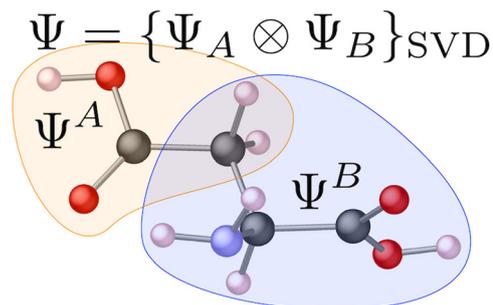
Vitaly V. Chaban* and Nadezhda A. Andreeva



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The overlapping fragment approach for non-orthogonal configuration interaction with fragments

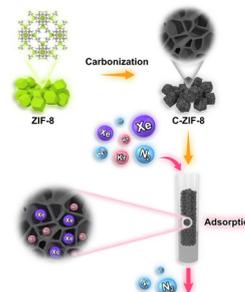
C. Sousa, X. Dong, R. Broer, T. P. Straatsma and C. de Graaf*



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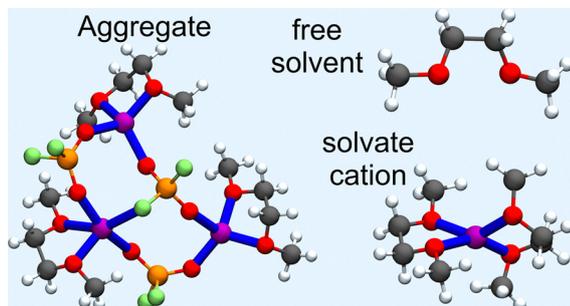
Insight into the characteristics of carbonized ZIF-8 for the separation of Kr and Xe

Peng Lin, Genggeng Dai, Xiaohua Liu, Yingzhe Du, Zhiguo Li, Duo Zhang, Wentao Zhou* and Fangbo Zhao*



RESEARCH PAPERS

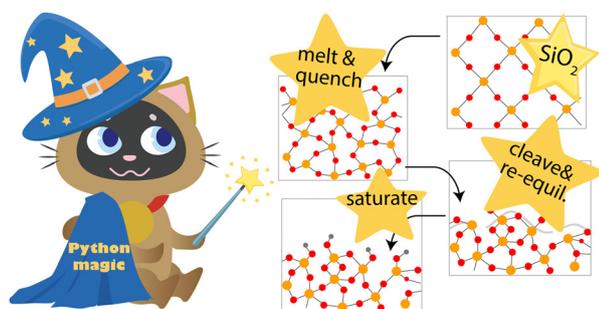
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Discrepant lithium transference numbers due to heterogeneous speciation

Frederik Philippi,* Yuna Matsuyama, Simon Buying, Taku Sudoh, Keisuke Shigenobu, Wataru Shinoda, Monika Schönhoff, Masayoshi Watanabe and Kazuhide Ueno

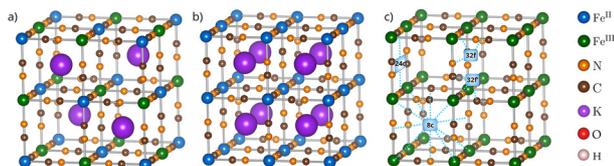
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Ground-up generation of periodic slab models of dehydroxylated amorphous silica of varying roughness

Mas P. Klein, Evgeny A. Pidko and Alexander A. Kolganov*

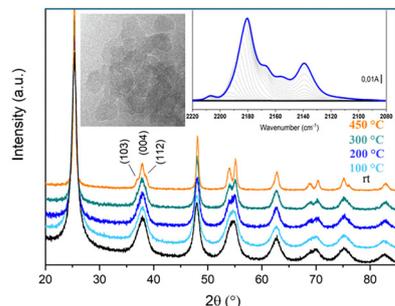
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Dependence of the crystal structure of Prussian blue on the occupation of interstitial sites

Maria Vitória Cavalheiro Issler, Cristiano Vicente, Iuri Stefani Brandt, Bruna Fernanda Baggio, Ricardo Faccio, Milton Andre Tumelero* and André Avelino Pasa*

15213



Effect of thermal treatments on high surface area anatase TiO₂

Chiara Nannuzzi,* Ton V. W. Janssens and Gloria Berlier*

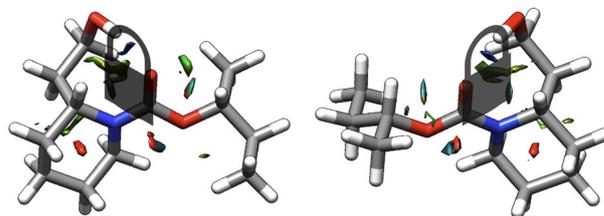


RESEARCH PAPERS

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Hydrogen-bond-assisted conformational selection of picaridin in the gas phase

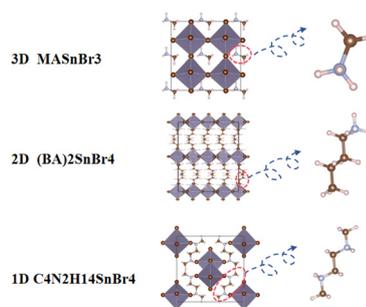
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Differences and regulation of self-trapped luminescence in one-dimensional Pb-based and Sn-based perovskites

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RETRACTIONS

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Retraction: Atomic diffusion of sulfate and chloride ions in the nanometer cavity of C-S-H/Nanoclay

Ali Dalvand, Seyed Amir Hossein Hashemi, Reza Farokhzad and Ali Delnavaz

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Retraction: Atomic Interactions Solidified Through the Introduction of Cellulose Nanocrystals to Cementitious Matrix: a Theoretical Study at the Molecular Level

Seyyed Mohammad Amin Fattahi, Seyed Amir Hossein Hashemi, Reza Farokhzad and Ali Delnavaz

