



# IMECE® International Mechanical Engineering Congress & Exposition®

Greater Columbus Convention Center, Columbus, OH

Conference: October 30 – November 3, 2022

Exhibition: October 30 – November 2, 2022

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## Effect of Strain Rate on the Creep-Fatigue Damage of Polycrystalline Ni-Base Superalloy at Elevated Temperature

OKoki Nakayama, Hideo Miura

Department of Finemechanics,  
Graduate School of Engineering,  
Tohoku University

IMECE Paper  
2022-94282



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IMECE2022-94891

## Prediction of the Generation of Intergranular Cracking in Stainless Steels under Creep Loading at Elevated Temperatures

Ken SUZUKI \*2, Koki NAKAYAMA \*1,  
Ayumi NAKAYAMA \*1, Shogo Tezuka \*1  
and Hideo MIURA \*2

Department of Finemechanics\*1,  
Fracture and Reliability Research Institute\*2,  
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## Improvement of the Sensitivity and Selectivity of Gas Molecules of Graphene-Base Gas Sensor with Carbon Nanotubes under the Application of Strain

○Yuto Hirose<sup>1</sup>), Xiangyu Qiao<sup>1</sup>),  
Wangyang Fu<sup>2</sup>), Ken Suzuki<sup>2</sup>), Hideo Miura<sup>2</sup>)

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## Molecular Dynamics Analysis on the Degradation Mechanism of the Crystallinity and Strength of Grain Boundaries in Heat-Resistant Alloys Under Creep-Fatigue Loading at Elevated Temperature

Shogo Tezuka<sup>1</sup>) and Ken Suzuki<sup>2</sup>)

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- <sup>2</sup>)Fracture and Reliability Research Institute,  
Graduate School of Engineering,  
Tohoku University, Japan



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## Strain-induced Change of Adsorption Behaviour of Gas Molecules on Graphene Analyzed by Density Functional Method

**Meng Yin**<sup>1</sup>), Xiangyu Qiao<sup>1</sup>), Qinqiang Zhang<sup>2</sup>),  
Ken Suzuki<sup>2</sup>) and Lei Wang<sup>3</sup>)

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University of Science and Technology, China

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## Acceleration of Intergranular Cracking in Ni-base Alloy GH4169 (IN718) Due to the Growth of δ-Phase around Grain Boundaries under Creep Loading at Elevated Temperatures

○Ayumi Nakayama, Run-Zi Wang, Hideo Miura

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Tohoku University, Japan



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Tuesday, November 1  
8:00AM - 9:00AM

Keynote Presentation:  
Imagining the Future  
of Engineering

Vivek Lall, Ph.D.  
Chief Executive  
General Atomics Global Corporation

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