

2021 Pitch Your Gen IV Research Competition

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Youtube pitch your Gen IV research competition

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The winners of “Pitch your Gen IV Research Competition 2021”

- **Prizes:** Winners have been selected in both the popular vote category and the GIF Jury category. Winners were announced at the May EG/PG meeting, and will be as well in June at the ANS meeting.

GIF Jury Category

The first-place winner is:

- (1) invited to present a webinar in December 2021 as part of the GIF Education and Training Working Group webinar series, and
- (2) invited to attend the next GIF Symposium planned in 2022 (travel expenses will be reimbursed on the OECD NEA basis).

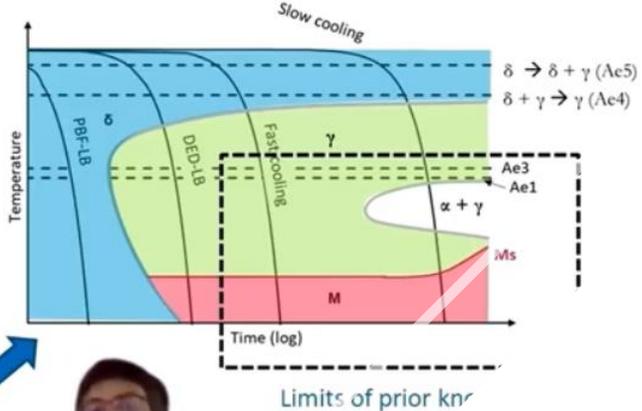
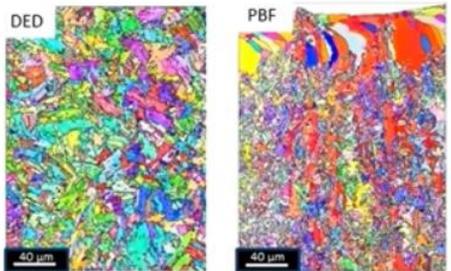
The second-place winner is:

- (1) invited to present a GIF webinar in March 2022, and
- (2) invited to attend a future GIF meeting in their region.

The Popular Vote Category (Likes with 80% weight and Views with 20% weight)

- The winner - *Audience Favorite* - will be invited to present a GIF webinar in May 2022.

Same powder, different microstructures !



$$r_f = f(T) = r_{\delta+\gamma} + \int_{Ae3}^{Ae4} 2 \left(D(T) \cdot \frac{dT}{v} \right)^{0.5}$$

Model with thermodynamic and diffusion

1st Place Winner of the Pitch Your Gen IV Research Competition

Development of an austenitic/martensitic gradient steel by additive manufacturing

Flore VILLARET

CEA (and now EDF), France

03/2021

flore.villaret@edf.fr

2nd Place Winner of the Pitch Your Gen IV Research Competition

GEN IV International Forum

Scale Effects Analysis on the Thermal Hydraulic Behavior of Impinging Jets in Sodium-Fast Reactors

Benjamin JOURDY
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DES / IRESNE / DTN / STCP / LTHC
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and I'm a 2nd year PhD Student working on the

GEN IV International Forum

Scale Effects Analysis on the Thermal Hydraulic Behavior of Impinging Jets, in Sodium-Fast Reactors

MICAS

MOJIT-Eau

$$Fr_D = \frac{\text{Buoyancy}}{\text{Inertia}} = \frac{u}{\sqrt{\frac{\Delta p}{\rho_{\infty}} g L}}$$

$$Eu = \frac{\text{Pressure}}{\text{Inertia}} = \frac{\Delta p}{\rho u^2}$$

$$Re = \frac{\text{Inertia}}{\text{Viscosity}} = \frac{\rho u L}{\eta}$$

$$Pe = \frac{\text{Convection}}{\text{Diffusion}} = \frac{u L}{\alpha}$$

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Development of nanosized carbide dispersed advanced radiation resistant austenitic stainless steels (ARES) for Generation IV systems

- Name: Jiho Shin (J.H. Shin)
- Affiliation: Korea Advanced Institute of Science and Technology (KAIST)
- Date: 29th March, 2021
- Contact Info: shinjiho@kaist.ac.kr



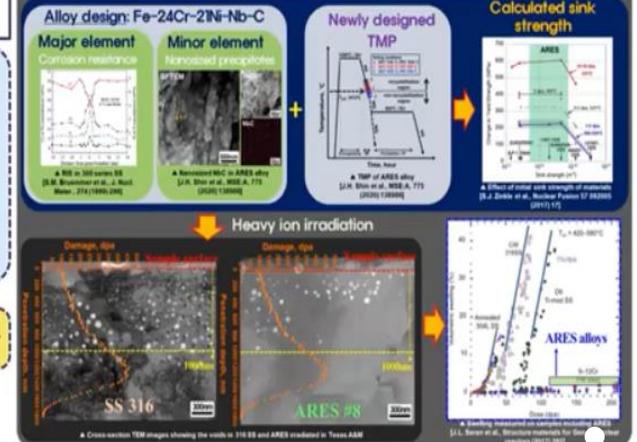
Radiation resistance of austenitic SS in Gen. IV system

Major challenge imposed to in-core materials in Gen. IV

- Intense fast neutron ϕ
- High neutron exposure (+ high E neutron)
- Extended design plant lifetime to 60 years
- High temperature - corrosive environment

Need for a superior material in Generation IV reactor

Development of superior radiation resistant austenitic SS



Popular Vote Winner of the Pitch Your Gen IV Research Competition