

# FAN FEI

Postdoctoral Researcher

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## EDUCATION

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### The University of Hong Kong, Hong Kong SAR

Ph.D. in Civil and Environmental Engineering

2018 - 2021

Dissertation: Phase-field approaches to discontinuities and fractures in geologic materials

Supervisor: Prof. Jinhyun Choo

### The University of Hong Kong, Hong Kong SAR

Bachelor of Engineering, with first honor graduation

2014 - 2018

Minor in Finance

## PUBLICATIONS

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The most up-to-date publication list can be seen in [Google Scholar](#).

### Preprints

- [1] **F. Fei** and J. Choo. (2021) Extended Barton–Bandis model for rock joints under cyclic loading: Formulation and an implicit algorithm. In review.

### Journal Articles

- [1] **F. Fei**, J. Choo, C. Liu, and J.A. White. (2022) Phase-field modeling of rock fractures with roughness. *International Journal for Numerical and Analytical Methods in Geomechanics*, [doi:10.1002/nag.3317](https://doi.org/10.1002/nag.3317).
- [2] J. Choo, A. Sohail, **F. Fei**, and T.-f. Wong. (2021) Shear fracture energies of stiff clays and shales. *Acta Geotechnica*, [doi:10.1007/s11440-021-01145-5](https://doi.org/10.1007/s11440-021-01145-5).
- [3] **F. Fei** and J. Choo. (2021) Double-phase-field formulation for mixed-mode fracture in rocks. *Computer Methods in Applied Mechanics and Engineering*, 376, 113655. [doi:10.1016/j.cma.2020.113655](https://doi.org/10.1016/j.cma.2020.113655)
- [4] **F. Fei** and J. Choo. (2020) A phase-field model of frictional shear fracture in geologic materials. *Computer Methods in Applied Mechanics and Engineering*, 369, 113265. [doi:10.1016/j.cma.2020.113265](https://doi.org/10.1016/j.cma.2020.113265)
- [5] **F. Fei** and J. Choo. (2020) A phase-field method for modeling cracks with frictional contact. *International Journal for Numerical Methods in Engineering*, 121(4), 740–762. [doi:10.1002/nme.6242](https://doi.org/10.1002/nme.6242)

### Conference Papers

- [1] **F. Fei**, Y. Sun, L.N.Y. Wong, and J. Choo. (2021) Phase-field modeling of mixed-mode cracking in rocks: From laboratory scale to field scale. In *Proceedings of the 55th US Rock Mechanics/Geomechanics Symposium*. Accepted.

- [2] J. Choo and F. Fei. (2020) Phase-field modeling of geologic fracture incorporating pressure-dependence and frictional contact. In *Proceedings of the 2nd International Conference on Energy Geotechnics*. doi:10.1051/e3sconf/202020503004

### Theses

- [1] F. Fei. (2021) Phase-field approaches to discontinuities and fractures in geologic materials.

## TEACHING AND SUPERVISION EXPERIENCE

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### Teaching Assistant

CIVL2106: Soil Mechanics, HKU (Fall and Spring Semesters)	2018 - 2021
CIVL8013: Computational Geomechanics, HKU (Spring Semesters)	2019 - 2021
CIVL6078: Rock Mechanics and Rock Engineering, HKU (Spring Semesters)	2019 - 2020

### Undergraduate Student Supervised and Co-supervised

Ka Chun Lai, HKU Topic: Numerical investigation of the Brazilian test.	2020 - 2021
Ammar Sohail, HKU Topic: Shear fracture properties of stiff clays and shales.	2019 - 2020

## AWARDS & HONORS

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Runner-Up for the Computational Mechanics Committee Student Paper Competition, Engineering Mechanics Institute (EMI) Conference 2021	2021
Hong Kong PhD Fellowship	2018-2021
Gammon Construction Ltd. Prize in Civil Engineering	2017
Chow Che King Prize	2017
Leung Ting Kui Scholarship	2016
C.L. Tse Prize in Civil Engineering	2015

## ACADEMIC ACTIVITIES

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### Oral Presentations

2019 Asian Pacific Congress on Computational Mechanics, Taipei, Taiwan Title: A phase-field method for modeling cracks with frictional contact.	12/2019
2021 Engineering Mechanics Institute Conference (virtual), New York, NY, USA Title: Phase-field modeling of shear fracture in geomaterials.	05/2021
The 55 <sup>th</sup> U.S. Rock Mechanics / Geomechanics Symposium (virtual), Houston, TX, USA Title: Phase-field modeling of mixed-mode fracture in rocks with discontinuities: from laboratory scale to field scale.	06/2021

*The 16<sup>th</sup> U.S. National Congress on Computational Mechanics (virtual)*  
Title: Double-phase-field modeling of mixed-mode fracture in rocks.

07/2021

**Poster Presentations**

*2021 Southern California Earthquake Center Annual Meeting (virtual)*  
Title: Phase-field modeling of rate- and state-dependent frictional faults.

09/2021

**Journals Reviewed**

*KSCE Journal of Civil Engineering*

*ICE Geotechnical Research*