CHUN-YU KE

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EDUCATION

Cornell University, Ithaca, New York, U.S.A. **09/2016 – 08/2021**
PhD, Structural Engineering, School of Civil and Environmental Engineering
Dissertation Title: Mechanics of Spontaneously Arrested Laboratory Earthquakes
Advisors: Assistant Professor Gregory C. McLaskey and Assistant Professor David S. Kammer

National Taiwan University, Taipei, Taiwan **09/2012 – 06/2014**
Master of Science, Structural Engineering, Department of Civil Engineering
Thesis title: Development of Structure Optimal Design Software: Applications in Cable-Stayed Bridge Design
Thesis advisor: Professor Liang-Jenq Leu, Chairman of the department.

National Taiwan University (NTU), Taipei, Taiwan **09/2008 – 06/2012**
Bachelor of Science in Engineering, Department of Civil Engineering

HONORS AND AWARDS

Outstanding Student Presentation Award, American Geophysical Union, U.S.A. **12/2020**
- The OSPAs are awarded to promote, recognize and reward students for quality research in the geophysical sciences.

Government Scholarship for Studying Abroad, Ministry of Education, Taiwan (R.O.C.) **06/2019**
- This scholarship honors outstanding Taiwanese graduate students who study abroad.

Altruistic Award, College of Engineering, National Taiwan University **01/2014**
- This award shall spotlight the contributions and selfless dedication made by an individual to the society at large.

Outstanding Young Researcher Award, the Twenty-Sixth KKHTCNN Symposium on Civil Engineering **11/2013**
- This is the only award in the KKHTCNN Symposium, which honors 7 outstanding young presenters.

Outstanding Overseas School Award, the Fifth China National Structure Design Contest for College Students **11/2011**
- I lead the team of 3 and participate in the competition on behave of the department of Civil Engineering, NTU.

Outstanding Teamwork Award, 2011 Bridge Design Aesthetics Workshop, China Engineering Consultants, Inc. **08/2011**
- I lead the team and participate in the workshop on behave of the department of Civil Engineering, NTU.

PROFESSIONAL EXPERIENCE

Assistant Professor at Department of Civil Engineering, National Taiwan University **08/2024 – present**

Research Associate at Department of Geoscience, Penn State University **07/2023 – 07/2024**

Postdoctoral Scholar at Department of Engineering Science and Mechanics, Penn State University **09/2021 – 06/2023**

Graduate Research Assistant at Cornell University **09/2016 – 08/2021**

Intern Developer, Fourdesire Co., Ltd. **11/2015 – 05/2016**

IT Consultant, IPworks Technology Corporation **01/2011 – 08/2016**

Administrative Cadre, National Fire Agency, Ministry of the Interior, Taiwan (R.O.C.) **10/2014 – 09/2015**

IT Engineer, Envision Engineering Consultants Inc. **08/2014 – 10/2014**

PEER REVIEWED JOURNAL PUBLICATIONS

- Kammer, D. S., McLaskey, G. C., Abercrombie, R. E., Ampuero, J.-P., Cattania, C., Cocco, M., Dal Zilio, L., Dresen, G., Gabriel, A.-A., **Ke, C.-Y.**, Marone, C., Selvadurai, P. A. & Tinti, E. (2024) Earthquake energy dissipation in a fracture mechanics framework. ***Nature Communications***, **15**, 4736. doi: 10.1038/s41467-024-47970-6.

• Kamml, J., **Ke, C.-Y.**, Acevedo, C. and Kammer, D.S. (2023) The Influence of AGEs and Enzymatic Cross-Links on the Mechanical Properties of Collagen Fibrils. ***Journal of the Mechanical Behavior of Biomedical Materials***, **143**, 105870. doi: 10.1016/j.jmbbm.2023.105870

• Cebry, S. B. L*****., **Ke, C.-Y***., Shreedharan, S., Marone, C., Kammer, D. S. and McLaskey, G. C. (2022) Creep fronts and complexity in laboratory earthquake sequences. ***Nature Communications***, **13**, 6839. doi: 10.1038/s41467-022-34397-0
****co-first authors***

• Cebry, S. B. L., **Ke, C.-Y** and McLaskey, G. C. (2022) The Role of Background Stress State in Fluid-Induced Aseismic Slip and Dynamic Rupture on a 3-meter Laboratory Fault. ***Journal of Geophysical Research: Solid Earth***, 127, e2022JB024371. doi: 10.1029/2022JB024371

• **Ke, C.-Y.**, McLaskey, G. C. and Kammer, D.S. (2022) Earthquake Breakdown Energy Scaling Despite Constant Fracture Energy. ***Nature Communications***, **13**, 1005. doi: 10.1038/s41467-022-28647-4

• Kammer, D. S., Albertini, G. and **Ke, C.-Y.** (2021) UGUCA: a spectral-boundary-integral method for modeling fracture and friction. ***SoftwareX***, **15**, 100785. doi: 10.1016/j.softx.2021.100785

• **Ke, C.-Y.**, McLaskey, G. C. and Kammer, D. S. (2021) The Earthquake Arrest Zone. ***Geophysical Journal International***, **224**(1), 581-589. doi: 10.1093/gji/ggaa386

• Brodsky, E. E., McLaskey, G. C. and **Ke, C.-Y.** (2020) Groove Generation and Coalescence on a Large-Scale Laboratory Fault. ***AGU Advances***, **1**(4), e2020AV000184. doi: 10.1029/2020AV000184

• **Ke, C.-Y**., McLaskey, G. C. and Kammer, D. S. (2018). Rupture Termination in Laboratory-Generated Earthquakes. ***Geophysical Research Letters***, **45**(23), 12,784–12,792. doi: 10.1029/2018GL080492

SELECTED CONFERENCE ABSTRACTS

• Cebry, S. B. L., **Ke, C.-Y**., Shreedharan, S., Marone, C., Kammer, D. S., McLaskey, G. C. (2023) Complex laboratory earthquake sequences and direct observations of creep fronts illuminate the mechanics of delayed earthquake triggering (Invited). American Geophysical Union, Fall Meeting Dec 11, 2023, #MR11A-02.

• **Ke, C.-Y.**, Wood, C., Rathbun, A., Marone, C., Elsworth, D., Riviere, J. and Shokouhi, P. (2022) An Integrated Experimental and Multi-Physics Numerical Study on the Interplay Between Hydraulic and Elastic Properties of Fractured Rock Interfaces Under Stress Perturbations. American Geophysical Union, Fall Meeting Dec 12, 2022, #MR55A-07.

• **Ke, C.-Y.**, McLaskey, G. C. and Kammer, D. S (2020) Spatial Distribution of Slip and Stress Changes in Contained Laboratory-Generated Earthquakes with Heterogeneous Initial Stress. American Geophysical Union, Fall Meeting Dec 14, 2020, #T043-05.

• **Ke, C.-Y.**, McLaskey, G. C. and Kammer, D. S (2019) A Singularity-Free Crack Model Inferred from Contained Laboratory-Generated Earthquakes. American Geophysical Union, Fall Meeting Dec 13, 2019, #S53F-0526. doi: 10.1002/essoar.10502142.1

• **Ke, C.-Y.**, McLaskey, G. C. and Kammer, D. S (2018) Rupture Termination in Laboratory-Generated Earthquakes. American Geophysical Union, Fall Meeting Dec 17, 2018, #T13B-06

SELECTED CONFERENCE PAPERS

• Zhan, X., **Ke, C.-Y.** and Leu, L.J. (2015) Optimal Design of Cable-Stayed Bridge Using Structural Analysis Software and Optimal Design Software. *Proceeding of the Sixth Cross-Straits Symposium on Monitoring and Control in Civil Engineering*, China, August 13-16, 2015.

• **Ke, C.Y.**, Shih, K.W. and Leu, L.J. (2013) Applications of Element Exchange Method in Structural Topology Optimization. *Proceeding of the Twenty-Sixth KKHTCNN Symposium on Civil Engineering*, Singapore, November 18-20, 2013.

OPEN-SOURCE SOFTWARE

• UGUCA: a spectral-boundary-integral method for modeling fracture and friction. https://uguca.gitlab.io/uguca/