Approved by the Regents
May 19, 2022

PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Yihe Huang, assistant professor of Earth and environmental sciences, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2014	California Institute of Technology
M.S.	2009	Tianjin University
B.S.	2007	Tianjin University

Professional Record:

2016 - Present	Assistant Professor, Department of Earth and Environmental Sciences, University of Michigan
2014 - 2016	Post-doctoral Research Fellow, Stanford Center for Induced and Triggered Seismicity, Stanford University

Summary of Evaluation:

Teaching: Professor Huang's teaching of undergraduate and graduate students spans a range of activities, from formal course offerings to mentoring and advising in research. Her stated objective is to inspire students to become curious about scientific questions, to learn how to develop testable hypotheses to answer these questions, and to develop skill sets that will enable them to solve real-world problems. She is also very thoughtful about inclusive pedagogy. Professor Huang takes advantage of recent earthquakes and uses them to cultivate in students a deep interest and delight in pursuing scientific discoveries. Professor Huang has developed and taught four courses at the University of Michigan, two at the lower undergraduate level (including the high-enrollment mini-course Earth 105: Tectonic Earth) and two at the graduate level, with consistently positive student evaluations. She has also established an exemplary record of graduate student mentoring.

Research: Professor Huang has made important contributions to earthquake seismology, especially in developing a theoretical understanding of the complex slip on fault planes using self-consistent fully dynamic earthquake rupture models. She complements computer simulations with analyses of recorded ground motions and geological field observations to test her numerical results. Her theoretical and observational work is relevant for understanding the irregular cycle of earthquakes and the forecasting of strong ground shaking during earthquakes. Two NSF grants, one in the form of a meritorious CAREER Award, have supported Professor Huang's research. She is widely recognized in the field for her original contributions to seismology. The 2021 Keiiti Aki Early Career Award is further evidence that Professor Huang has had great success as an early-career scientist.

Recent and Significant Publications:

Lui, S. K. Y., Huang, Y., & Young, R. P. (2021). "The role of fluid pressure-induced aseismic slip in earthquake cycle modulation." *Journal of Geophysical Research: Solid Earth*, *126*(4), e2020JB021196. https://doi.org/10.1029/2020JB021196.

Thakur, P., Huang, Y., & Kaneko, Y. (2020). "Effects of low-velocity fault damage zones on long-term earthquake behaviors on mature strike-slip faults." *Journal of Geophysical Research: Solid Earth*, *125*(8), e2020JB019587. https://doi.org/10.1029/2020JB019587.

Ramos, M. D., & Huang, Y. (2019). "How the transition region along the Cascadia megathrust influences coseismic behavior: Insights from 2-D dynamic rupture simulations." *Geophysical Research Letters*, *46,* 1973–1983. https://doi.org/10.1029/2018GL080812.

Huang, Y. (2018). "Earthquake rupture in fault zones with along-strike material heterogeneity." *Journal of Geophysical Research: Solid Earth*, *123*(11), 9884-9898. https://doi.org/10.1029/2018JB016354.

Service: Professor Huang has performed valuable service at the departmental, university, and professional levels. She has provided strong service contributions to the wider professional community, including reviews for many professional journals, the NSF, and two foreign granting agencies; an associate editorship; service in IRIS; maintenance of a seismometer; and reviewing student papers for the American Geophysical Union. Professor Huang has made contributions to the university's DEI mission through her mentoring of underrepresented students. Professor Huang is committed to contribute to EarthCamp, a premier departmental DEI program, and through the broader impacts of her recent NSF CAREER grant.

External Reviewers:

Reviewer (A): "[Professor Huang] is one of those very few colleagues [of her generation] that have already made several important discoveries and stands out in her unusual combination of broad knowledge, technical and mathematical skills, and geophysical intuition. I believe that her intellectual abilities and academic accomplishments are on par with any of the great scientists [of her cohort] I have worked with at [my institution] and interacted with elsewhere, and she is clearly headed for a particularly successful research career in seismology."

Reviewer (B): "Professor Huang is both innovative and productive in her research, and her papers are making a significant impact on our understanding of earthquake faulting. She is a leader among her generation of seismologists on an international level."

Reviewer (C): "Dr. Huang has done an outstanding job of achieving research excellence, including high publication productivity, high visibility, and engagement and leadership, with outstanding teaching and mentoring, and service to UM and the geoscience community. These are remarkable achievements. Dr. Huang has had significant impacts on our field, both through the research publications and knowledge contributed, and through mentoring of students and postdoctoral scholars. Dr. Huang is highly deserving of tenure and I feel entirely confident that she would be awarded tenure at [my institution]. I would be honored and excited to have Dr. Huang as a colleague and I look forward to interacting with her in the future."

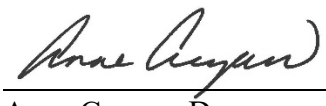
Reviewer (D): "Her research on dynamic rupture of earthquakes is broadly recognized as being at the leading edge of quantitative analysis of earthquake fracturing…These outstanding papers

play an important role in our current understanding of how great earthquake ruptures occur. Her work has been innovative and at the cutting edge of international modeling efforts in this arena."

Reviewer (E): "Please forgive the brevity of this letter, but I don't see this as a close call. After reviewing Dr. Huang's CV, publications, and teaching and research statements, I strongly endorse promotion and tenure. Unless there are serious issues in the teaching record that are not part of the material provided to me, this file would have no trouble earning tenure at [my institution]. The publication record is strong, particularly in the last three years, with most of these papers first-authored by Dr. Huang or one of her students or postdocs. Dr. Huang has clearly established a vigorous research program that is independent of her doctoral and postdoctoral advisors. Earning the NSF Career award is the icing on the cake, as this is a highly competitive program."

Reviewer (F): "I view her as one of the best seismologists in her age cohort. She is an active participant in the geoscience community. I would support her promotion if she were at [my institution] and expect that she would get it."

Summary of Recommendation:
Professor Huang has established herself as an independent and highly respected researcher with theoretical and computational expertise in earthquake seismology. She has maintained a vibrant group of students and post-doctoral scholars, who are supported by external funding from the National Science Foundation. She is a valued colleague in both the Department of Earth and Environmental Sciences and her broader scientific community for the service contributions she has made. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Yihe Huang be promoted to the rank of associate professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts.



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