Harsha S. Bhat

Director of Research, CNRS
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EDUCATION

2021	**H.D.R.**, *Supershear Earthquakes* — École Normale Supérieure, France †
2007	**Ph.D.**, Mechanical Sciences — Harvard University, USA *
2002	**M.S.**, Engineering Sciences — Harvard University, USA
2001	**B.E.**, Civil Engineering — NITK, India

† *Habilitation à Diriger des Recherches* * *Supervised by Prof. James R. Rice & Dr. Renata Dmowska*

CURRENT POSITIONS

2024 – present	**CNRS Director of Research** — École Normale Supérieure, France
2022 – present	**Teaching Professor (PCC)** — École Polytechnique, France

PAST POSITIONS

2016 – 2024	CNRS Research Scientist — École Normale Supérieure, France
2021 – 2023	Visiting Professor — NISER, India
2012 – 2016	CNRS Research Scientist — Institut de Physique du Globe de Paris, France
2010 – 2011	Assistant Professor (Research) — University of Southern California, USA
2007 – 2010	Post-Doctoral Fellow — University of Southern California, USA
2007 – 2010	Visitor in Aeronautics — California Institute of Technology, USA
2007 – 2007	Post-Doctoral Fellow — Harvard University, USA
2001 – 2007	Graduate Research Associate — Harvard University, USA

FUNDING & GRANTS

2021 – 2025	**2 M€** ERC Consolidator Grant — PERSISMO (No. 865411)
2023 – 2027	**100 k€** ANR SMEC
2023 – 2026	**100 k€** ANR Univ. Tokyo SESAME
2023 – 2025	**66 k€** SPARC Grant, India
2018 – 2018	**25 k€** ENS Actions Incitatives
2017 – 2017	**6 k€** TelluS INSU — action ALEAS

HONORS & AWARDS

2018	Grand Prix Michel Gouilloud Schlumberger — French Academy of Sciences
2018	CNRS Award for Doctoral Supervision and Research
2003 – 2006	Harvard University Certificate of Distinction in Teaching (2003, 2004, 2006)

STUDENTS

Postdoctoral Associates

2024 – 2026	Ankit Gupta (India)	
2025 – 2027	Suli Yao (China)	
2022 – 2025	Navid Kheirdast (Iran)	Post-Doctoral Fellow, ISTeP

2021 – 2023	Michelle Almakari (France)	
2021 – 2023	Carlos D. Villafuerte (Mexico)	Asst. Prof., UNAM
2019 – 2022	Ekeabino Momoh (Nigeria)	AXA Postdoc Fellow
2018 – 2021	Lucile Bruhat (France)	Nat. Catastrophe Risk Analyst, AXA
2019 – 2019	Lisa Gordeliy (Russia)	Senior Engineer, ResFrac
2014 – 2016	Marion Y. Thomas (France)	CNRS Scientist, Univ. de Rennes

PhD Students

2024 – 2027	Bharath Shanmugasundaram (India)	
2024 – 2027	Yishuo Zhou (China)	
2023 – 2026	Thomas Melkior (France)	
2023 – 2027	Caiyuan Fan (China)	
2021 – 2024	Jinhui Cheng (China)	Postdoc, Caltech
2020 – 2023	Augustin Thomas (France)	Research Scientist, BRGM
2020 – 2023	Joseph Flores Cuba (Peru)	Data Scientist, PowerBI
2018 – 2021	Claudia Hulbert (France)	CEO, Geolabe
2017 – 2020	Samson Marty (France)	Postdoc, Caltech
2014 – 2019	Marshall A. Martinez (USA)	Engineer, Joby Aviation
2015 – 2018	Kurama Okubo (Japan)	Research Scientist, NIED, Japan
2014 – 2017	Pierre Romanet (France)	Research Scientist, Cerema, France
2010 – 2015	Vahe Gabuchian (USA)	Research Scientist, Caltech
2011 – 2014	François X. Passelègue (France)	CNRS Scientist, GeoAzur, Nice
2008 – 2013	Jonathan Mihaly (USA)	Jet Propulsion Laboratory
2007 – 2012	Michael Mello (USA)	Teaching Professor, Caltech

Undergraduate & Masters Interns

Valentin Marnat (2022) | Roxane Ferry (2019, 2021) | Jinhui Cheng (2020) | Phillipe Danre (2017, 2019) | Hugo Lestrelin (2019) | Nicolas Mercury (2018) | Luc Illien (2018) | Eleni Kolokytha (2015) | Victor Barolle (2015) | Kurama Okubo (2014) | Thibaut Perol (2013) | Lucile Bruhat (2012) | Marion Olives (2004) | Sonia Fliss (2003)

TEACHING

Current — École Polytechnique

Mécanique du Milieu Continu | Mécanique des Solides | Mécanique de la Rupture | Mécanique des Matériaux et des Structures

Past — Harvard, Caltech, IPGP, ENS (with various colleagues)

Mécanique des Milieux Continus | Active Faults: Geometry | Seismic Ruptures and Scaling Laws | Introduction to Rock Physics | Mathematical Methods in the Sciences | Environmental Risks and Disasters | Ordinary and Partial Differential Equations | Complex and Fourier Analysis | Computational Solid and Structural Mechanics | Solid Mechanics | Introduction to the Mechanics of Solids | Mechanics of Fracture | Advanced Geomechanics | Mécanique de la Fracturation

ORGANIZATION OF SCIENTIFIC MEETINGS

Jan 2026	Earthquake Source: Mechanics, Seismology and Geology Workshop — NISER, India
2023, 2024	Across the Time Scales, from Earthquakes to Earthquake Cycle — EGU

Jun 2019	Coupled Processes in Fracture Propagation in Geo-Materials — CISM Advanced School, Udine
Apr 2015	Multiscale Modeling of Fragmentation & Damage in Fault Zones — SSA
Dec 2014	Fault Zone Properties & Processes During Dynamic Ruptures — AGU

INSTITUTIONAL RESPONSIBILITIES

2018 – 2024	Team Leader, Faults & Earthquakes Group — ENS
2018 – 2019	Co-organizer, Internal Seminar — ENS
2025	Member, HCERES Committee for ISTerre — Univ. Grenoble

REVIEWING ACTIVITIES

AGU | SSA | Science | Nature | Nature Communications | Nature Geoscience | Science Advances | PNAS | J. Mech. Phys. Solids | Eur. J. Mech. A/Solids | Int. J. Fracture | EPSL | GRL | J. Struct. Geol. | Geology | GJI | J. Appl. Mech. | GSA | NSF | ERC

BOOKS

2017 Thomas, M. Y., T. M. Mitchell, and H. S. **Bhat**, eds. (2017b). *Fault Zone Dynamic Processes : Evolution of Fault Properties During Seismic Rupture, Geophysical Monograph 227*. American Geophysical Union (AGU). DOI: 10.1002/9781119156895.

2012 Bizzarri, A. and H. S. **Bhat**, eds. (2012). *The mechanics of faulting: From laboratory to earthquakes*. Research Signpost.

BOOK CHAPTERS

2022 Thomas, M. Y. and **Bhat**, H. S. (2022b). "Loi de friction et modélisation numérique du cycle sismique". in Le Cycle Sismique. Ed. by F. Rolandone. ISTE-Wiley. DOI: 10.51926/iste.9038.ch4.

2022 Thomas, M. Y. and **Bhat**, H. S. (2022a). "Friction Laws and Numerical Modeling of the Seismic Cycle". in The Seismic Cycle: From Observation to Modeling. Ed. by F. Rolandone. ISTE-Wiley. DOI: 10.1002/9781394173709.ch4.

PUBLICATIONS

In Preparation

2026 Kheirdast, N, **Bhat**, H. S., Almakari, M, Gupta, A, Villafuerte, C, Thomas, M. Y., and Dubernet, P (2026). "Energy budget of spectrum of slip dynamics emerging from simplified model of fault and damage zone architecture". **to be subm. J. Geophys. Res.**

2026 Garagash, D. I., Brantut, N., **Bhat**, H. S., Schubnel, A., and Jolivet, R. (2026). "Low effective stress along faults caused by upwelling fluid flow in laboratory and nature". **to be subm. J. Geophys. Res.**

2026 Gupta, A., **Bhat**, H. S., Faulkner, D. R., Bhattacharya, P., and Bollinger, L. (2026). "A model for intraplate fault zones using rate and state friction law". **to be subm. J. Geophys. Res.**

2026 Fan, C., Lin, G., Aubry, J., Deldicque, D., Giorgetti, C., **Bhat**, H. S., and Schubnel, A. (2026). "Transition from thermal pressurization to dilatant strengthening during stick-slip ruptures in thermally cracked westerly granite". **to be subm. J. Geophys. Res.**

2026 Momoh, E., Tait, S., and **Bhat**, H. S. (2026). "3-D thermomechanical geodynamic modelling of the French Massif Central, France; and Eifel Volcanic Region, Germany; and prospects for geothermal exploration". **to be subm. Tectonophysics**.

2026 Bhagat, R., Sreejith, K., Gahalaut, V., **Bhat**, H. S., and Bhattacharya, P. (2026a). "Coupled Fault Interaction and Fluid-Driven Migration in an Intraplate Earthquake Swarm, Palghar, India". **to be subm. Geophys. Res. Lett.**

2026 Bhagat, R., Sreejith, K., Satriano, C., Gahalaut, V., **Bhat**, H. S., and Bhattacharya, P. (2026b). "Aseismic slip and low-frequency earthquakes within an intraplate seismic swarm: the role of fault network geometry". **to be subm.**

Under Review

2026 Zhou, Y., Aochi, H., Schubnel, A., Ide, S., and **Bhat**, H. S. (2026a). "Tidal sensitivity of tremors in a mixed fast and slow earthquake system in northeastern Japan". **subm. J. Geophys. Res.** DOI: 10.48550/arXiv.2606.24362.

2026 Yao, S., Yang, H., **Bhat**, H. S., and Aochi, H. (2026). "Supershear Rupture Indicator in Near-fault Particle Motion". **submitted**. DOI: 10.48550/arXiv.2606.10843.

2026 Thomas, M. Y. and **Bhat**, H. S. (2026). "Une Histoire de la compréhension des Tremblements de Terre". in Histoire et philosophie des sciences. Ed. by Y. Vaills. ISTE.

2026 Cheng, J., **Bhat**, H. S., Almakari, M., Lecampion, B., and Dubernet, P. (2026). "Quantifying the Role of 3D Fault Geometry Complexities on Slow and Fast Earthquakes". **minor revisions Geophys. Res. Lett.** DOI: 10.48550/arxiv.2602.16403.

2026 Zhou, Y., Gupta, A., Aochi, H., Schubnel, A., Ide, S., and **Bhat**, H. S. (2026b). "Theoretical Constraints on Tidal Triggering of Slow Earthquakes". **minor revisions J. Geophys. Res.** DOI: 10.48550/arxiv.2602.06703.

2026 Wang, C., Wang, P., Wu, B., **Bhat**, H. S., Bhattacharya, P., Xie, Y., Xia, K., and Schubnel, A. (2026). "Complex fault slip behavior modulated by fluid injection rate". **subm. Nat. Comm.**

Published

2026 Almakari, M., Kheirdast, N., Villafuerte, C. D., Thomas, M. Y., Dubernet, P., Cheng, J., Gupta, A., Romanet, P., Chaillat, S., and **Bhat**, H. S. (2026). "Fault volume digital twin to reproduce the full slip spectrum, scaling and statistical laws". **J. Geophys. Res.** 131, e2025JB032915. DOI: 10.1029/2025JB032915.

2026 Melkior, T., **Bhat**, H. S., and Amlani, F. (2026). "Tsunami modeling with dynamic seafloors: a high-order solver validated with shallow water benchmarks". **J. Comput. Phys.** 562.114990. DOI: 10.1016/j.jcp.2026.114990.

2026 Michel, S., Scotti, O., Hok, S., **Bhat**, H. S., Kheirdast, N., Romanet, P., Almakari, M., and Cheng, J. (2026). "A rate-and-state friction based criterion for the probability of earthquake fault jumps". **J. Geophys. Res.** 131, e2025JB031449. DOI: 10.1029/2025JB031449.

2025 Latour, S., Lebihain, M., **Bhat**, H. S., Twardzik, C., Bletery, Q., Hudnut, K. W., and Passelègue, F. (2025). "Direct Estimation of Earthquake Source Properties from a Single CCTV Camera". **Science** 390, pp. 463–467. DOI: 10.1126/science.adz1705.

2025 Cheng, J., Almakari, M., Peruzzo, C., Lecampion, B., and **Bhat**, H. S. (2025). "FASTDASH, a Quasi-dynamic 3D Seismic Cycle Model by Using Boundary Element Method with H-matrices". **Geophys. J. Int.** DOI: 10.1093/gji/ggaf230.

2025 Momoh, E., **Bhat**, H. S., Tait, S., and Gerbault, M. (2025). "Volumetric (dilatant) plasticity in geodynamic models and implications on thermal dissipation and strain localization". **Geophys. J. Int.** 240.3, pp. 1551–1578. DOI: 10.1093/gji/ggae463.

2025 Ferry, R., Thomas, M. Y., **Bhat**, H. S., and Dubernet, P. (2025). "Depth Dependence of Coseismic Off-Fault Damage and its Effects on Rupture Dynamics". **J. Geophys. Res.** e2024JB029787. DOI: 10.1029/2024jb029787.

2024 Petit, L., Olive, J.-A., Schubnel, A., Le Pourhiet, L., and **Bhat**, H. S. (2024). "A brittle constitutive law for long-term tectonic modeling based on sub-critical crack growth". **to appear in Geochem. Geophys. Geosyst.** 25, e2023GC011229. DOI: 10.1029/2023gc011229.

2023 Jeandet-Ribes, L., Thomas, M. Y., and **Bhat**, H. S. (2023). "On the importance of setting 3-D stress field in simulations of on- and off-fault deformation". **Geophys. J. Int.** 235.3, pp. 2962–2978. DOI: 10.1093/gji/ggad401.

2023 Marty, S., Schubnel, A., **Bhat**, H. S., Aubry, J., Fukuyama, E., Latour, S., Nielsen, S., and Madariaga, R. (2023). "Nucleation of laboratory earthquakes: quantitative analysis and scalings". **J. Geophys. Res.** 128.e2022JB026294. DOI: 10.1029/2022jb026294.

2022 Amlani, F., **Bhat**, H. S., Simons, W. J. F., Schubnel, A., Vigny, C., Rosakis, A. J., Efendi, J., Elbanna, A., Dubernet, P., and Abidin, H. Z. (2022). "Supershear shock front contribution to the tsunami from the 2018 Mw 7.5 Palu, Indonesia earthquake". **Geophys. J. Int.** 230, pp. 2089–2097. DOI: 10.1093/gji/ggac162.

2021 Jara, J., Bruhat, L., Thomas, M. Y., Antoine, S., Okubo, K., Klinger, Y., Jolivet, R., and **Bhat**, H. S. (2021). "Signature of transition to supershear rupture speed in coseismic off-fault damage zone". **Proc. R. Soc. A.** 477, p. 20210364. DOI: 10.1098/rspa.2021.0364.

2021 Elbanna, A., Abdelmeguid, M., Ma, X., Amlani, F., **Bhat**, H. S., Synolakis, C., and Rosakis, A. J. (2021). "Anatomy of Strike Slip Fault Tsunami Genesis". **Proc. Natl. Acad. Sci. USA**. DOI: 10.1073/pnas.2025632118.

2021 **Bhat**, H. S. (2021). "Supershear Earthquakes". *Habilitation à Diriger des Recherches, Ecole Normale Supérieure*.

2020 Jeandet-Ribes, L., Cubas, N., **Bhat**, H. S., and Steer, P. (2020). "Response of a single fault to transient normal stress change, and implications of large erosional events on the seismic cycle". **Geophys. Res. Lett.** 47.e2020GL087631. DOI: 10.1029/2020gl087631.

2020 Jolivet, R, Simons, M, Duputel, Z, Olive, J.-A., **Bhat**, H. S., and Bletery, Q. (2020). "Interseismic Loading of Subduction Megathrust Drives Long-Term Uplift in Northern Chile". **Geophys. Res. Lett.** 47.8, e2019GL085377. DOI: 10.1029/2019gl085377.

2020 Okubo, K., Rougier, E, Lei, Z., and **Bhat**, H. S. (2020). "Modeling earthquakes with off-fault damage using the combined finite discrete element method". **J. Comp. Part. Mech.** DOI: 10.1007/s40571-020-00335-4.

2019 Okubo, K., **Bhat**, H. S., Rougier, E., Marty, S., Schubnel, A., Lei, Z., Knight, E. E., and Klinger, Y. (2019). "Dynamics, radiation and overall energy budget of earthquake rupture with coseismic off-fault damage". **J. Geophys. Res.** 124. DOI: 10.1029/2019jb017304.

2019 Marty, S., Passelègue, F. X., Aubry, J., Schubnel, A., **Bhat**, H. S., and Madariaga, R. (2019). "Origin of high-frequency radiation during laboratory earthquakes". **Geophys. Res. Lett.** 46. DOI: 10.1029/2018gl080519.

2018 Aubry, J., Passelègue, F. X., Deldicque, D., Girault, F., Marty, S., Lahfid, A., **Bhat**, H. S., Escartin, J., and Schubnel, A. (2018). "Frictional heating processes and energy budget during laboratory earthquakes". **Geophys. Res. Lett.** 45. DOI: 10.1029/2018gl079263.

2018 Klinger, Y., Okubo, K., Vallage, A., Champenois, J., Delorme, A., Rougier, E., Lei, Z., Knight, E. E., Munjiza, A., Satriano, C., Baize, S., Langridge, R., and **Bhat**, H. S. (2018). "Earthquake damage patterns resolve complex rupture processes". **Geophys. Res. Lett.** DOI: 10.1029/2018gl078842.

2018 Cruz-Atienza, V. M., Villafuerte, C. D., and **Bhat**, H. S. (2018). "Rapid tremor migration and pore-pressure waves in subduction zones". **Nat. Commun.** 9.1, p. 2900. DOI: 10.1038/s41467-018-05150-3.

2018 Thomas, M. Y. and **Bhat**, H. S. (2018). "Dynamic evolution of off-fault medium during an earthquake: a micromechanics based model". **Geophys. J. Int.** 214.2, pp. 1267–1280. DOI: 10.1093/gji/ggy129.

2018 Romanet, P., **Bhat**, H. S., Jolivet, R., and Madariaga, R. (2018). "Fast and slow earthquakes emerge due to fault geometrical complexity". **Geophys. Res. Lett.** DOI: 10.1029/2018gl077579.

2017 Gabuchian, V., Rosakis, A. J, **Bhat**, H. S., Madariaga, R., and Kanamori, H. (2017). "Experimental evidence that thrust earthquake ruptures might open faults". **Nature** 545.336–339. DOI: 10.1038/nature22045.

2017 Thomas, M. Y., **Bhat**, H. S., and Klinger, Y. (2017a). "Effect of Brittle off-fault Damage on Earthquake Rupture Dynamics". in Fault Zone Dynamic Processes : Evolution of Fault Properties During Seismic Rupture, Geophysical Monograph 227. Ed. by M. Y. Thomas, H. S. **Bhat**, and T. M. Mitchell. American Geophysical Union (AGU), pp. 255–280. DOI: 10.1002/9781119156895.ch14.

2017 Passelègue, F. X., Latour, S., Schubnel, A., Nielsen, S., **Bhat**, H. S., and Madariaga, R. (2017). "Precursory Processes during Laboratory Earthquakes". in Fault Zone Dynamic Processes : Evolution of Fault Properties During Seismic Rupture, Geophysical Monograph 227. Ed. by M. Y. Thomas, H. S. **Bhat**, and T. M. Mitchell. American Geophysical Union (AGU). Chap. 12, pp. 229–242. DOI: 10.1002/9781119156895.ch12.

2016 Perol, T. and **Bhat**, H. S. (2016). "Micromechanics based permeability evolution in brittle materials at high strain rates". **Pure Appl. Geophys.** Pp. 1–12. DOI: 10.1007/s00024-016-1354-4.

2016 Passelègue, F. X., Schubnel, A., Nielsen, S., **Bhat**, H. S., Deldicque, D., and Madariaga, R. (2016). "Dynamic rupture processes inferred from laboratory microearthquakes". **J. Geophys. Res.** 121. DOI: 10.1002/2015jb012694.

2016 Mello, M., **Bhat**, H. S., and Rosakis, A. J. (2016). "Spatiotemporal properties of sub-Rayleigh and supershear rupture velocity fields : Theory and Experiments". **J. Mech. Phys. Solids** 93, pp. 153–181. DOI: 10.1016/j.jmps.2016.02.031.

2015 Vallage, A, Klinger, Y, Grandin, R, **Bhat**, H. S., and Pierrot-Deseilligny, M (2015). "Inelastic surface deformation during the 2013 Mw 7.7 Balochistan, Pakistan, earthquake". **Geology** 43.12, pp. 1079–1082. DOI: 10.1130/g37290.1.

2015 Frank, W. B., Shapiro, N. M., Husker, A. L., Kostoglodov, V, **Bhat**, H. S., and Campillo, M (2015). "Along-fault pore-pressure evolution during a slow-slip event in Guerrero, Mexico". **Earth Planet. Sc. Lett.** 413, pp. 135–143. DOI: 10.1016/j.epsl.2014.12.051.

2015 Siriki, H., **Bhat**, H. S., Lu, X., and Krishnan, S. (2015). "A Laboratory Earthquake-Based Stochastic Seismic Source Generation Algorithm for Strike-Slip Faults". **Bull. Seism. Soc. Am.** 105.4, pp. 2250–2273. DOI: 10.1785/0120140110.

2014 Mello, M., **Bhat**, H. S., Rosakis, A. J., and Kanamori, H. (2014). "Reproducing The Supershear Portion Of The 2002 Denali Earthquake Rupture In Laboratory". **Earth Planet. Sc. Lett.** 387, pp. 89–96. DOI: 10.1016/j.epsl.2013.11.030.

2013 Passelègue, F. X., Schubnel, A., Nielsen, S., **Bhat**, H. S., and Madariaga, R. (2013). "From Sub-Rayleigh to Supershear Ruptures During Stick-Slip Experiments on Crustal Rocks". **Science** 340.6137, pp. 1208–1211. DOI: 10.1126/science.1235637.

2012 **Bhat**, H. S., Rosakis, A. J., and Sammis, C. G. (2012). "A Micromechanics Based Constitutive Model For Brittle Failure at High Strain Rates". **J. Appl. Mech.** 79.3. DOI: 10.1115/1.4005897.

2011 **Bhat**, H. S., Sammis, C. G., and Rosakis, A. J. (2011). "The Micromechanics of Westerley Granite at Large Compressive Loads". **Pure Appl. Geophys.** 168.12, pp. 1–18. DOI: 10.1007/s00024-011-0271-9.

2010 **Bhat**, H. S., Biegel, R. L., Rosakis, A. J., and Sammis, C. G (2010). "The Effect of Asymmetric Damage on Dynamic Shear Rupture Propagation II: With Mismatch in Bulk Elasticity". **Tectonophysics** 493.3, pp. 263–271. DOI: 10.1016/j.tecto.2010.03.016.

2010 Biegel, R. L., **Bhat**, H. S., Sammis, C. G., and Rosakis, A. J. (2010). "The Effect of Asymmetric Damage on Dynamic Shear Rupture Propagation I: No Mismatch in Bulk Elasticity". **Tectonophysics** 493.3, pp. 254–262. DOI: 10.1016/j.tecto.2010.03.020.

2010 Mello, M., **Bhat**, H. S., Rosakis, A. J., and Kanamori, H. (2010). "Identifying the unique ground motion signatures of supershear earthquakes: Theory and experiments". **Tectonophysics** 493, pp. 297–326. DOI: 10.1016/j.tecto.2010.07.003.

2010 Templeton, E. L., **Bhat**, H. S., Dmowska, R., and Rice, J. R. (2010). "Dynamic rupture through a branched fault configuration at Yucca Mountain and resulting ground motions". **Bull. Seism. Soc. Am.** 100.4, pp. 1485–1497. DOI: 10.1785/012009012110.1785/0120090121.

2009 Harris, R. A., Barall, M., Archuleta, R. J., Dunham, E. M., Aagaard, B., Ampuero, J.-P., **Bhat**, H. S., Cruz-Atienza, V., Dalguer, L., Dawson, P., Day, S. M., Duan, B., Ely, G., Kaneko, Y., Kase, Y., Lapusta, N., Liu, Y., Ma, S., Oglesby, D. D., Olsen, K. B., Pitarka, A., Song, S., and Templeton, E. L. (2009). "The SCEC/USGS dynamic earthquake rupture code verification exercise". **Seismol. Res. Lett.** 80.1. DOI: 10.1785/gssrl.80.1.119.

2009 Sammis, C. G., Rosakis, A. J., and **Bhat**, H. S. (2009). "Effects of Off-fault Damage on Earthquake Rupture Propagation: Experimental Studies". **Pure Appl. Geophys.** 166. DOI: 10.1007/s00024-009-0512-3.

2009 Templeton, E. L., Baudet, A., **Bhat**, H. S., Dmowska, R., Rice, J. R., Rosakis, A. J., and Rousseau, C. E. (2009). "Finite Element Simulations of Dynamic Shear Rupture Experiments and Dynamic Path Selection Along Kinked and Branched Faults". **J. Geophys. Res.** B08304. DOI: 10.1029/2008jb006174.

2008 Dunham, E. M. and **Bhat**, H. S. (2008). "Attenuation of radiated ground motion and stresses from three-dimensional supershear ruptures". **J. Geophys. Res.** 113.B08319. DOI: 10.1029/2007jb005182.

2007 **Bhat**, H. S., Dmowska, R., King, G. C. P., Klinger, Y., and Rice, J. R. (2007a). "Off-fault damage patterns due to supershear ruptures with application to the 2001 M_w 8.1 Kokoxili (Kunlun) Tibet earthquake". **J. Geophys. Res.** B06301. DOI: 10.1029/2006jb004425.

2007 **Bhat**, H. S., Olives, M., Dmowska, R., and Rice, J. R. (2007b). "Role of fault branches in earthquake rupture dynamics". **J. Geophys. Res.** B11309. DOI: 10.1029/2007jb005027.

2007 **Bhat**, H. S. (2007). "Role of Geometric Complexities and Off-Fault Damage in Dynamic Rupture Propagation". PhD thesis. Harvard University.

2005 Fliss, S., **Bhat**, H. S., Dmowska, R., and Rice, J. R. (2005). "Fault branching and rupture directivity". **J. Geophys. Res.** B06312. DOI: 10.1029/2004jb003368.

2004 **Bhat**, H. S., Dmowska, R., Rice, J. R., and Kame, N. (2004). "Dynamic slip transfer from the Denali to Totschunda faults, Alaska: Testing theory for fault branching". **Bull. Seism. Soc. Am.** 94, S202–S213. DOI: 10.1785/0120040601.