Dr. David John Erskine

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Professional Preparation

University of Illinois	Physics (Magna Cum Laude)	B.S., 1979
Cornell University	Experimental Solid State Physics	Ph.D., 1984

Thesis: Optically measured relaxation time of electron-hole carriers in semiconductors using femtosecond pulsed lasers; Invented "equal-pulse" relaxation time measurement technique. Prof. C.L. Tang advisor.

Univ. of Calif., Berkeley	High Pressure Physics	Postdoc, 1984-1987

Discovered new superconducting high pressure crystalline phases of Si predicted by Prof. Marvin Cohen. Measured electrical conductivity of silicon squeezed to 450 Megabars between diamond tips at liquid helium temperatures; Prof. Peter Yu advisor.

Appointments

UC Berkeley Space Sciences	Sabbatical research (EDI interferometry theory)	(2000-2001)
Lawrence Livermore Nat. Lab.:	Staff Physicist (Doppler interferometry specialist)	(1987-present)
UC Berkeley Physics Dept.	Postdoctoral researcher (high pressure physics)	(1984-1987)
Cornell Univ.	Graduate student (semiconductor optics)	(1979-1984)
Argonne Nat. Lab.	Summer Research Associate (heat flow)	(1977, 1978)

Research Foci

- **Optical measurement techniques innovation** (white light interferometry[A, A2, A3], 2-D velocity interferometry[F, F2], externally dispersed interferometry for Doppler planet search[B, B2, B3, B4], externally dispersed interferometry for astronomical high resolution spectroscopy[B5, B6, B7]);
- **Data analysis & signal processing algorithm development** (ghost fringe removal via vector subtraction[C], holographic interpretation of defocussed 2d-velocimetry fringes[D, D2], speckle-adaptive fringe analysis algorithm[E])

History

Erskine has performed nearly 37 years of experimental research in a wide variety of disciplines: femtosecond lasers, semiconductor physics, superconductivity, material science, diamond anvil cell high pressure physics, shock physics, optical diagnostics, Fourier signal processing, high speed recording technology, velocity interferometry, high resolution spectroscopy, and astronomical instrumentation innovation (Doppler planet search). Experienced at multidisciplinary research, he has provided technical leadership in many collaborations between academic researchers and students and the National Laboratory. He loves creating novel instrumental techniques, especially involving optics.

Professional Memberships

Amer. Astr. Soc., Opt. Soc. Amer., SPIE (Intrn. Soc. for Optics), Amer. Phys. Soc., Planetary Soc., Am. Geophys. Un.

Honors

R&D 100 Magazine Innovation Award 2006[B3], Physics Directorate Award 2006, DNT Directorate Award 2007.

Patents

US Patent 6,351,307 "**Combined dispersive/interference spectroscopy for producing a vector spectrum**", D.J. Erskine, filed Feb 23, 2000, issued Feb. 26, 2002, (IL-10168). FringingSpec13.pdf, US6351307.pdf	B4. Describes externally dispersed interferometry for Doppler, high resolution spectroscopy, and angular measurement
US Patent 6,115,121 "**Single and double superimposing interferometer systems**", D.J. Erskine, filed Oct 31, 1997, issued Sept. 5, 2000, (IL-10000). IL-10000M-2d.pdf, US6115121.pdf	Interferometer design ideas stemming from applying white light interferometry

US Patent 5,943,132 "**Multichannel Heterodyning for Wideband Interferometry, Correlation and Signal Processing**", D.J. Erskine, filed Feb 5, 1998, issued Aug. 24, 1999, (IL-9998). MultiBeat17.pdf, US5943132.pdf	Ideas on how to make long delays
US Patent 5,910,839 "**White Light Velocity Interferometer**", D.J. Erskine, filed Mar 14, 1997, issued June 8, 1999, [continuation of 5,642,194], (IL-9745B). US5910839.pdf, WLVcont1.pdf	Tweaks to the white light patent
US Patent 5,872,628 "**Noise Pair Velocity and Range Echo Location System**", D.J. Erskine, filed Sept 27, 1996, issued Feb. 16, 1999, (IL-9864). NoisePair15.pdf, US5872628.pdf	Applying white light velocimetry idea to radar
US Patent 5,642,194 "**White Light Velocity Interferometer**", D.J. Erskine, filed Feb 5, 1996, issued June 24, 1997, (IL-9745). WLVpat10c.pdf, US5642194.pdf	A3. Using two identical interferometers in series, incoherent broadband light can produce fringes measuring Doppler shifts, lasers not needed
"**Techniques in Broadband Interferometry**", David J. Erskine, **LLNL Technical Report** UCRL-TR-201695 (2003). Broadband_Intrf_Patents4d.pdf	Collected patents reformatted in journal style

Recent work

2010-17 Shock Physics Doppler Interferometry	
"**VISAR fringe analysis under extreme spatially varying shock loading**", David J. Erskine, Dayne E. Fratanduono, **20th APS/Shock Comprssn. Cndnsd. Matter**, July 9-14, 2017, St. Louis, MO, proceedings submitted. StLouisSpatialProcGen.pdf	Row-by-row approach similar to speckle adaptive algorithm of proceedings E. Here it solves problem of spatially varying velocity, which confuses traditional col-by-col approach.
"**Toward Sub-wavelength Spatial Resolution in VISAR Interferogram Analysis**", D. J. Erskine, abstract for 21th Annl. LLNL Signal & Imaging Sci. Workshop (CASIS), May 17, 2016, LLNL. CASIS2017PosterErskineSparva.pdf	How to do phase stepping over only about a quarter wave of total phase step dither. Figure 5c of JATIS 2(4) paper below shows theory. This abstract demos it with data. I ended up being too busy to present this poster.
"**Shock equation of state of ^{6}LiH to 1.1 TPa**", A. Lazicki, R. London, F. Coppari, D. Erskine, H. Whitley, K. Caspersen, D. Fratanduono, M. Morales, P. Celliers, J. Eggert, M. Millot, D. Swift, G. Collins, S. Kucheyev, J. Castor, and J. Nilsen, Phys. Rev. B, 96:134101, Oct 2017. Lazicki_LiH_paper.pdf	I did VISAR data analysis using my row-by-row style of phase stepping method
"**Hugoniot Measurements of Matter Compressed to 100 Mbar at the National Ignition Facility**", M. Gregor, A. Lazicki, D. Erskine, R. London, F. Coppari, D. Swift, J. Eggert, D. Fratanduono, P. Celliers, H. Whitley, and J. Nilsen, 59th APS Div. of Plasma Physics, Milwaukee, WI, Oct. 23-27, 2017. dpp_abstract_Gregor.pdf	I did VISAR and transit time analysis
"**Reference-free EOS measurements from laser-accelerated flyer-plate impact**", Federica Coppari, Peter M. Celliers, Marius Millot, Richard London, Amy Lazicki, Dayne E. Fratanduono, David J. Erskine, Damian C. Swift, Jon H. Eggert, Joseph Nilsen, 9th Intrntl. Wrkshp. Warm Dense Plasma, April 9-13, 2017, Vancouver, B.C. Canada, Coppari_wdm2017_v1abstr(17Jan11).pdf	I did some of the VISAR data analysis, using my row-by-row style of phase stepping analysis
"**Using phase contrast imaging to measure the properties of shock compressed aerogel**," J. Hawreliak, D. Erskine, A. Schropp, E. C. Galtier, and P. Heimann, in 19th APS/Shock Cmprssn. Cndnsd. Matter, Tampa FL, June 14-19, 2015, AIP Conf. Series 1793, p. 090006, Jan. 2017. Hawreliak2015SCCMproc.pdf	I did VISAR data analysis and helped take data at SLAC
"**Design and analysis of x-ray driven shock wave equation-of-state experiments on the National Ignition Facility**," R. A. London, A. Lazicki, P. M. Celliers, D. J. Erskine, D. E. Fratanduono, N. B. Meezan, J. L. Peterson, and NIF EOS Team, 58th APS Div. of Plasma Physics, San Jose, CA, Oct. 16-20, 2016. London_APS_DPP_2016.pdf	I contributed VISAR data analysis
"**Developing absolute shock wave equation of state measurements on the NIF**", P.M. Celliers, D.E. Fratanduono, A. Lazicki, R. London, S. Brygoo, D. Swift, F. Coppari, M. Millot, J.L. Peterson, N.B. Meezan, A. Fernandez-Panella, D. Erskine, S. Ali, and G.W. Collins, 58th APS Div. of Plasma Physics, San Jose, CA, Oct. 16-20, 2016. Celliers_APS_DPP_2016_abstract.pdf	I contributed VISAR data analysis
"**Ghost fringe removal techniques using Lissajous data presentation**", D. J. Erskine, Jon Eggert, Peter Celliers, and Damien Hicks, **Rev. Sci. Instrum**. 87, 033106 (2016). RSIghostGen.pdf	C. Novel vector method for removing artifact of window reflections that can confuse VISAR velocimetry data

"**Ghost fringe removal techniques using Lissajous data presentation**", David Erskine, Jon Eggert, Peter Celliers, and Damien Hicks, 20th APS/Shock Cmprsn. Cndsd. Matter, Tampa, FL, June 14-19, 2015, AIP Conf. Series 1793, p. 160016, Jan. 2017. GhostTampaProc.pdf	Novel vector method for removing artifact of window reflections that can confuse VISAR velocimetry data
"**Speckle-adaptive VISAR Fringe Analysis Technique**", David Erskine, 19th APS/Shock Cmprsn. Cndsd. Matter, Tampa, FL, June 14-19, 2015, AIP Conf. Series 1793, p. 160017, Jan. 2017. TampaSpeckleProc.pdf	E. New method takes into account the phase and magnitude variation vertically prior to finding horizontal dependence. Does row-by-row instead of traditional col-by-col.
"**Holography Reveals Hidden Cracks in Shocked Targets**", D.J. Erskine, R.F. Smith, P. Celliers, G. Collins, C. Bolme, S. Ali, **LLNL Sci. & Techn. Rev.** January/February 2015, p. 2. JanFeb_2015_S&TR_DOR_4.pdf	
"**Speckle-Adaptive Phase Stepping Algorithm for Row-by-row Interferogram Analysis**", **Record of Invention**, IL-12967, Feb. 5, 2015. Phase Stepping RoI submitted.rtfd	
"**New Hugoniot measurements on LiF and diamond from laser-driven compression**", F. Coppari, A. Lazicki, D. Fratanduono, P. Celliers, R. London, D. Erskine, D. Swift, J. Eggert, G. Collins, H. Whitley, J. Castor, J. Nilsen, **APS/Shock Cmprsn. Cndsd. Matter**, Tampa, FL, June 14-19, 2015, abstr# C2.00004. Abstr-LiF-Tampa-SCCM.pdf	
"**Two-Dimensional Imaging Velocimetry of Heterogeneous Flow and Brittle Failure in Diamond**", S.J. Ali, R. Smith, D. Erskine, J. Eggert, P. Celliers, G.W. Collins, and R. Jeanloz, **APS/Shock Cmprsn. Cndsd. Matter**, Tampa, FL, June 14-19, 2015, abstr# D6.00003. Abstr-2D-VISAR-Tampa-SCCM.pdf	
"**Advances in VISAR Interferogram Analysis: Speckle-Adaptive & Ghost Fringe Removal Techniques**", David Erskine, Abstr. for 19th Ann. **LLNL Signal & Imaging Sci. Workshop** (CASIS), LLNL, May 2015. CASIS-abstr-SpeckleAdaptive-2015.pdf	
"**Holographic & Time-resolving Ability of Pulse-pair Two-dimensional Velocity Interferometry**", D.J. Erskine, R.F. Smith, C.A. Bolme, S. Ali, P.M. Celliers, and G.W. Collins, **Rev. Sci. Instr.** 85, 063115, June 26, 2014. RefocusRSI_gen.pdf	D. Surprisingly, 2d velocity interferometry data can be treated as a hologram and focussed numerically to correct blurry data after the fact
"**Serendipitous Holography Reveals Hidden Cracks in Shocked Targets**", D.J. Erskine, R.F. Smith, P. Celliers, Gilbert Collins, C. Bolme, S. Ali, **LLNL Newsline**, Oct 14, 2014. Reporter Breanna Bishop. Newsline_Refocus_2014Oct14c.pdf;	
"**Two-Dimensional Imaging Velocimetry of Heterogeneous Flow and Brittle Failure in Diamond**", S.J. Ali, R. Smith, D. Erskine, P. Celliers, J. Eggert, S. Brygoo, C. Bolme, R. Jeanloz, and G.W. Collins, **High Pressure Gordon Research Conference**, Univ. of New England, Biddeford, ME, ed. G. Collins June 23 - 27, 2014, poster. 2014GRC_Poster_Draft4sm2.jpg	
"**Numerical re-focusing of 2d-VISAR data**", D. J. Erskine, R. Smith, C. Bolme, S. Ali, P. Celliers, G. Collins, **APS/Shock Compression Condnsd. Matter**, Seattle, July 7-12, 2013, J. Phys.: Conf. Series 500, 142013 (2014). RefocusSeattleProc2013_Gen.pdf	
"**Heterogeneous Flow and Brittle Failure in Shock-compressed Silicon**", R.F. Smith, C.A. Bolme, D.J. Erskine, P.M. Celliers, S. Ali, J.H. Eggert, S.L. Brygoo, B.D. Hammel, J. Wang, G.W. Collins, **J. Appl. Phys.** 114, 133504 (2013). Smith_2DVISAR_JAP2013.pdf	
"**Two-dimensional Imaging Velocity Interferometry: Technique and Data Analysis**", D. Erskine, R. Smith, C. Bolme, P. Celliers, and G. Collins, **Rev. Sci. Instr.** 83, 043116 (2012). 2dVisar_DA_RSI2012_final.pdf	F2
"**A High-Resolution Two-Dimensional Imaging Velocimeter**", P.M. Celliers, D.J. Erskine, C.M Sorce, D.G. Braun. O.L. Landen, and G.W. Collins, **Rev. Sci. Instr.** 81, 035101 (2010). RSI_2d_VISAR_Omega.pdf	
"**Recovering a Short Timescale Signal from a Pair of Long-delay VISARs**", D. Erskine, **APS/ Shock Cmprssn. Cndsnd. Matter**, Chicago, June 26 - July 1, 2011. FastChicago15_AIP2012.pdf	
"**Two-dimensional Imaging Velocity Interferometry: Technique and Data Analysis**", D. Erskine, R. Smith, C. Bolme, P. Celliers, and G. Collins, **APS/Shock Cmprssn. Cndsnd. Matter**, Chicago, June 26 - July 1, 2011. 2dChicago_AIP2012.pdf	

2010-17 Doppler Planet Search and High Res Spectroscopy	
"**Enhanced exoplanet biosignature from an interferometer addition to low resolution spectrographs**", D. J. Erskine, P. S. Muirhead, A. M. Vanderburg, A. Szentgyorgyi, Session P10: Detection and Characterization of Habitable Exoplanets: Progress and Future, Amer. Geophys. Union meeting, New Orleans, Dec 11-15, 2017, poster P53B-2649. AGU-2017-NewOrleans-Poster-Gen.pdf	Modeling shows adding 0.6 cm interferometer to Gemini Planet Imager boosts R=40 to effectively R=4000 for molecular features
"**Greatly enhanced exoplanet biosignature from an interferometer addition to a low resolution spectrograph**", D. J. Erskine, P. S. Muirhead, A. M. Vanderburg, A. Szentgyorgyi, AAS meeting, Austin, TX, June 4-8, 2017, poster 118.07. 37x37-Poster-2017-AAS-Austin-Gen.pdf	Modeling shows adding 0.6 cm interferometer to Gemini Planet Imager boosts R=40 to effectively R=4000 for molecular features
"***Glasses for Mr. Magoo's Spectrograph***", D. Erskine, Astronomy Beat, newsletter for Astr. Soc. Pacific, edited by L. Shore, vol. 154, p1-7, March 8, 2017. AstroBeatGen.pdf	History and photos of EDI over the years
"**Spectral resolution boosting Gemini Planet Imager's Integral Field Spectrograph using a small Externally Dispersed Interferometer addition**", D. J. Erskine, briefing, GPI 2.0 Mtg, Stanford Univ., March 9, 2017, host Prof. Bruce Macintosh. Erskine-SpecResBoostingGPI.pdf	Briefing for GPI folks considering possible upgrades. Showed how adding 0.6 cm interferometer to integral field spectrograph boosts R=40 to effectively R=4000 for atmospheric features
"**High-resolution broadband spectroscopy using externally dispersed interferometry at the Hale telescope: Part 2, photon noise theory**", D.J. Erskine, J. Edelstein, E. Wishnow, M. Sirk, P.S. Muirhead, M.W. Muterspaugh, and J.P. Lloyd, **J. Astr. Tele. Instrm. Sys.** 2(4), 045001 (2016), doi: 10.1117/1.JATIS.2.4.045001. TediTenxPart2gen.pdf	B7. Part 2, photon theory for multiple delay EDI spectroscopy
"**High-resolution broadband spectroscopy using externally dispersed interferometry at the Hale telescope: part 1, data analysis and results**", D.J. Erskine, J. Edelstein, E. Wishnow, M. Sirk, P.S. Muirhead, M.W. Muterspaugh, J.P. Lloyd, Y. Ishikawa, E. McDonald, W. V. Shourt, A. M. Vanderburg, **J. Astr. Tele. Instrm. Sys.**, 2(2), 025004 (2016), doi: 10.1117/1.JATIS.2.2.025004, cover article. TediTenxPart1gen.pdf	B6. Part 1, describes data analysis and results of multi-delay EDI high resolution spectroscopy at Mt. Palomar Obs. 200 inch
(Invited) "**Dispersed Interferometers"** chapter in book **"The WSPC Handbook of Astronomical Instrumentation**", David J. Erskine, **World Scientific Publishing Company**, Editors: David Burrows and Anna Moore, to be published 2018. WorldSciGen.pdf	Review of three kinds of dispersed interferometer techniques
"**Canceling Spectrograph PSF Drift Error by Mixing Interferometer Delay Pairs**", David J. Erskine, E. Linder, E. Wishnow, J. Edelstein, M. Sirk, P. Muirhead, J. Lloyd, A. Kim, Proc. **SPIE** 9908, Edinburgh UK, June 26, 2016, 99085Y, (2016). EdinburghSPIEgen.pdf, 37x37PosterErskineGen.pdf	Nifty analysis technique for dramatically reducing spectrograph wavelength drift errors. Conference proceeding and poster.
"**Developing and deploying an externally dispersed interferometer-testbed for visual-band, high-resolution spectroscopy on 2.0-m class telescopes**", J. Maxwell, M. Muterspaugh, M. Williamson, E. Wishnow, C. Harrison, A. Whitehurst, J. Edelstein, David J. Erskine, D. Fishler, F. Hoff, S. Swihart, **SPIE** 9908, Edinburgh, UK, June 26 - July 1, 2016, poster 9908-278. Muterspaugh_poster_2016_SPIE Edinburgh.JPG	Collaborator's poster. EDI technique applied to 2m telescope at Mt. Hopkins, TSU graduate student education
"**Giving Cosmic Redshift Drift a Whirl**", Alex G. Kim, Eric Linder, J. Edelstein, and D.J. Erskine, **Astropart. Phys.** 62, pp. 195-205 (2015). CosmicWhirlAstroPart2015.pdf	Theoretically explore measuring redshift drift using externally dispersed interferometry (EDI) and spatially heterodyning spectroscopy (SHS)
"**Phase Stepping Algorithm For Unknown Irregular Steps: Applications in Dispersed Interferometry**", D.J. Erskine, and J. Edelstein, **OSA/FTS** meeting, Lake Arrowhead, CA, March 1-4, 2015, abstract-summary. FTS-Arrowhead10bucrl.pdf	
"**High Resolution Broad-Band Spectroscopy in the NIR Using the TripleSpec Externally Dispersed Interferometer at the Hale Telescope**", D.J. Erskine, J. Edelstein, M. Sirk, E. Wishnow, Y. Ishikawa, E. McDonald, W. V. Shourt, **SPIE** 9147, Montreal, June 22-27, 2014. Montreal2014_SPIE.pdf	
"**Precise Stellar Radial Velocities of an M Dwarf with a Michelson Interferometer and a Medium-resolution Near-infrared Spectrograph**", Philip S. Muirhead, Jerry Edelstein, David J. Erskine, J. T. Wright, M. W. Muterspaugh, K. R. Covey, E. Wishnow, K. Hamren, P. Andelson, D. Kimber, T. Mercer, S. Halverson, A. Vanderburg, D. Mondo, A. Czeszumska and J. P. Lloyd, **Publ. Astr. Soc. Pacific** 123, pp 709-724, June (2011). TEDI_PASP2011.pdf	Describes the Doppler velocimetry aspect of using EDI at Hale Telescope. See 2016 JATIS papers for spectroscopy aspect.
"**Measuring Precision Wideband Stellar Spectra using a Dispersed Interferometer**", D. J. Erskine, J. Edelstein, M. Sirk, A. Vanderburg, and E. Wishnow, **OSA Conf. on Fourier Transform Spect.**, Arlington, VA, June 23-27, 2013. FTS_Arlington_abstr7f.pdf	

"**Enhanced spectral resolution via externally dispersed interferometry**", J. Edelstein, D. J. Erskine, M. Sirk, A. Vanderburg, E.H. Wishnow, **SPIE** 8446, July 1-6, 2012, Amsterdam, Netherlands, paper# 177. edi_spie2012c2.pdf	
"**Ten-fold Spectral Resolution Boosting using TEDI at the Mt. Palomar Near-Infrared Triplespec Spectrograph**", D.J. Erskine, Jerry Edelstein, P. Muirhead, M. Muterspaugh, K. Covey, D. Mondo, A. Vanderburg, P. Andelson, D. Kimber, M. Sirk, J. Lloyd, **SPIE** 8146, Aug. 21-25, 2011, San Diego, CA, paper# 8146-22. Tenfold18b-IM.pdf	
"**Six-fold Spectral Resolution Boosting with an Interferometer upon the Mt. Palomar Near-Infrared Spectrograph**", D.J. Erskine, Jerry Edelstein, P. Muirhead, K. Covey, J. Lloyd, M. Muterspaugh, **OSA Conf. on Fourier Transform Spectroscopy**, July 10-14, 2011, Toronto, Canada. Talk FTuA4. FTS_Toronto_abstr4dIM.pdf	
"**Precise Infrared Radial Velocimetry with the Triplespec Exoplanet Discovery Instrument: current performance and results**", P. Muirhead, J. Edelstein, J. Wright, D. Erskine, M. Muterspaugh, K. Covey, M. Marckwordt, S. Halverson, M. Marckwordt, D. Mondo, J. Lloyd, June 27 - July 2, 2010, San Diego, CA, **SPIE** 7735, p77357X (2010). 7735_SPIE_Muirhead2010b.pdf	
"**Infrared Radial Velocimetry with TEDI: Performance Development**", J. Edelstein, P. Muirhead, J. Wright, K. Covey, D. Erskine, M. Muterspaugh, J. Lloyd, S. Halverson, M. Marckwordt, D. Mondo, June 27 - July 2, 2010, San Diego, CA, **SPIE** 7735, p773583 (2010). 7735_SPIE_Jerry2010.pdf	
2000-09 Doppler Planet Search and High Res Spectroscopy	
"**High Resolution Broadband Spectroscopy using an Externally Dispersed Interferometer**", D.J. Erskine, J. Edelstein, M. Feuerstein and B. Welsh, **ApJ.** 592, L103-L106 (2003). BoostApJ16939b.pdf	B5. First reviewed article demonstrating EDI for boosting resolution, on Lick's Hamilton spectrograph, single delay
"**An Externally Dispersed Interferometer Prototype for Sensitive Radial Velocimetry: Theory and Demonstration on Sunlight**", D.J. Erskine, **Publ. Astron. Soc. Pacific** 115, 255-269 (2003). ErskinePASP_Feb03c.pdf	B2. Introduces EDI theory for Doppler, demo on sunlight using 1998 data.
"**An Externally Dispersed Interferometer for Sensitive Doppler Extra-solar Planet Searches**", J. Ge, D.J. Erskine and M. Rushford, **Publ. Astron. Soc. Pacific** 114, 1016-1028 (2002). GeErskineRushford.pdf	
"**Progress with the TEDI near-infrared exoplanet velocimeter**", J. Edelstein, D.J. Erskine, P. Muirhead, M. Muterspaugh, J. Lloyd, J. Wright, M. Marckwordt, T. Mercer, S. Halverson, and M. Gooding, San Diego, Aug 2-6-2009, **SPIE** 7440, (2009). SPIE_abstr_San_Diego_Aug09.pdf	
"**Dispersed Interferometry for Infrared Exoplanet Velocimetry**", J. Edelstein, D.J. Erskine, J. Lloyd, M. Muterspaugh, P. Muirhead, and J. Wright, Marseille, France, June 23-28, 2008, **SPIE** 7014, (2008). Marseille_SPIE7014-274.pdf	
"**Externally Dispersed Interferometry for Precision Radial Velocimetry**", D.J. Erskine, M. Muterspaugh, J. Edelstein, J. Lloyd, T. Herter, W.M. Feuerstein, P. Muirhead, and E. Wishnow, **AAAC Exoplanet Task Force White Paper**, Amer. Astron. Soc. 211th Mtg., Austin, TX, Jan. 7-11, 2008, <2007arXiv0710.2130E>. ExoPTF9c_.pdf	
"**TEDI: the TripleSpec Exoplanet Discovery Instrument**", J. Edelstein, M.W. Muterspaugh, D.J. Erskine, W.M. Feuerstein, M. Marckwordt, E. Wishnow, J. Lloyd, T. Herter, P. Muirhead, G. Gull, C. Henderson, S. Parshley, **SPIE** 6693, (2007). TEDI_SPIE6693.pdf	
"**Noise Studies of Externally Dispersed Interferometry for Doppler Velocimetry**", D.J. Erskine, J. Edelstein, J. Lloyd, P. Muirhead, Orlando, FL, May 24-31, 2006, **SPIE** 6269, (2006). OrlandoNoise17pp2.pdf	
"**The TEDI Instrument for Near-IR Radial Velocity Surveys**", J. Edelstein, D. Erskine, J. Lloyd, T. Heter, M. Marckwordt, and M. Feuerstein, Orlando, FL, May 24-31, 2006, **SPIE** 6269, (2006). Tedi.spie.06c.pdf	
"**High Resolution Absorption Spectroscopy using Externally Dispersed Interferometry**", J. Edelstein & D. J. Erskine, San Diego, CA, July 31-Aug. 4, 2005, **SPIE** 5898-38**,** (2005). UVDiego5j3.pdf	
"**Externally Dispersed Interferometry for Planetary Studies**", D. J. Erskine, J. Edelstein, D. Harbeck & J. Lloyd, San Diego, CA, July 31-Aug. 4, 2005, **SPIE** 5905-29**,** (2005). TediDiego7d2.pdf	
"**Multiple-Delay Externally Dispersed Interferometry**", D.J. Erskine and J. Edelstein, OSA/ Fourier Trans. Spect., Alexandria, VA, Jan. 31-Feb. 3, 2005, **OSA Technical Digest** 2005, paper FWD2. FTSvirg4ppFixUCRL.pdf	
"**Interferometric Resolution Boosting for Spectrographs**", D. J. Erskine & J. Edelstein, Glasgow, Scotland, UK, June 21-25, 2004, **SPIE** 5492**,** pp 190–199 (2004). Scot16Bppr2.pdf	
"**Externally Dispersed Interferometry for Resolution Boosting and Doppler Velocimetry**", D.J. Erskine, in "2nd Science with SALT Workshop", Capetown, S. Africa, Oct. 2003, ed. D. Buckley, **ASP Conf.** (2004). salt_proc10.pdf	

"**Externally Dispersed Interferometry for Low Noise High Resolution Broadband Spectroscopy**", D.J. Erskine, OSA/Fourier Trans. Spectr. (Quebec City, Feb. 3-6, 2003), A. Sawchuk, ed., **OSA Trends in Opt. & Photonics** (OSA 2003), Vol. 84, paper FWB3. QuebOSA3UCRL2.pdf	
"**High-resolution Broadband Spectral Interferometry**", D.J. Erskine and J. Edelstein, Waikoloa, HI, Aug. 22-28, 2002, **SPIE** 4854, 158-169 (2003). HiResSPIE13.pdf	
"**Spectral Astrometry Mission for Planets Detection**", D.J. Erskine and J. Edelstein, Waikoloa, HI, Aug. 22-28, 2002, **SPIE** 4852, 695-706 (2003). SAMSPIE9b.pdf	
2000-09 Shock Physics Doppler Interferometry	
"**Ramp Wave Stress-density Measurements of Ta and W**", J. Eggert, M. Bastea, D.B. Reisman, S. Rothman, J.-P. Davis, M.d. Knudson, D.B. Hayes, G.T. Gray III, D. Erskine, and G.W. Collins, CP955, **APS/Shock Compression of Condensed Matter** - 2007, ed. M. Elert et al. AIP, (2007). Ta_Z_sccm07_.pdf	
"**Heterodyning Time Resolution Boosting for Velocimetry and Reflectivity Measurements**", D. J. Erskine, High Speed Photography and Photonics, 26th International Congress on (Alexandria, VA, Sept. 19-21, 2004), **SPIE** 5580**,** pp 600-608 (2004). Alex11pp3.pdf	
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