VITA

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EDUCATION

1977 – Ph. D. Space Physics and Astronomy, Rice University (Houston, Texas)
Thesis adviser: Prof. Donald D. Clayton
Title: "Nucleosynthesis of Light Elements in Young Supernova Remnants Surrounding Pulsars"
1975 – M. Sc. Space Physics and Astronomy, Rice University (Houston, Texas)
1973 – M. Sc. Physics (with distinction), The Hebrew University (Jerusalem, Israel)
1970 – B. Sc. Physics, The Hebrew University (Jerusalem, Israel)

CURRENT POSITION

1983 – present: Astrophysicist, Observational Cosmology Lab., NASA/ GSFC

PREVIOUS POSITIONS

1981 – 1983: National Research Council Associate, NASA/ GSFC
1979 – 1981: Research Fellow, Astronomy Program, University of Maryland
1977 – 1979: Research Fellow in Physics, Kellog Radiation Lab., CalTech

SOCIETIES MEMBERSHIP

International Astronomical Union (IAU)
American Astronomical Society (AAS)
American Association for the Advancement of Science (AAAS)
American Physical Society (APS)

MEMBER OF THE COBE SCIENCE TEAM

In 2006, The Swedish National Academy of Sciences awarded the Nobel Prize in Physics to Drs. John Mather and George Smoot, for their discovery of the shape and anisotropy of the cosmic microwave background radiation. These discoveries were made with the *Cosmic Background Explorer* (*COBE*) satellite, of which I was a Science Team member.

AWARDS

2007 - Excellent Achievements Award - NASA/GSFC
2006 - Peter Gruber Foundation Prize in Cosmology
as member of the (COBE) Science Team
2006 - Special Act Award "For theoretical investigations of the
contribution of primordial stars to the near-infrared background radiation."
1995 - Outstanding Achievement Award

1994 - Outstanding Achievement Award
1990 - Excellence Achievement Award
1989 - Group Achievement Award for KAO observations of SN1987A
1989 - Group Achievement Award for Cosmic Background Explorer (COBE) Science Team
1989 - Group Achievement Award for (COBE) Science Team

THESIS SUPERVISION
Tom Sodroski PhD Thesis University of Maryland, 1988
Dave Bazell PhD Thesis University of Maryland, 1990
Scott Foster MSc Thesis University of Maryland, 1994
KinWing Chan PhD Thesis University of Maryland, 1995

POSTDOCTORAL ADVISOR
Rick Arendt (NRC Postdoctoral Research Fellow: 1990–1992)
Arlin Crotts (NRC Postdoctoral Research Fellow:)
Jonathan Slavin (NRC Postdoctoral Research Fellow: 1993–1995)
Randall Smith (NRC Postdoctoral Research Fellow: 1996–1998)
Michel Fioc (NRC Postdoctoral Research Fellow: 1998–2000)
Karl Misselt (NRC Postdoctoral Research Fellow: 2000–2001)
Viktor Zubko (Postdoctoral Research Fellow: 2001-2003)
Pierre Chanial (NRC Postdoctoral Research Fellow: 2003–present)
Frédéric Galliano (NRC Postdoctoral Research Fellow: 2004–present)

UNDERGRADUATE GRADUATE STUDENT RESEARCH
Tilak Hewagama - 1985 (University of Maryland)
Scott Foster - 1994 (University of Maryland)
Michael Barker - 2002 (University of Maryland)
Rachel Dudik - 2007 (George Mason University)

TEACHING EXPERIENCE
Fall 2003: Graduate student course on Cosmology and Galaxy Formation
Department of Astronomy - University of Maryland, College Park
1982 - 1991: Introductionary Astronomy/Cosmos University of Maryland, Adult Education

SELECT INVITED LECTURES

1. International Conference on "Cosmic Dust Near and Far", Heidelberg (Sept 2008)
   Title: **The Cycle of Dust in the Milky Way" Clues from the High-Redshift and Local Universe**

2. International Conference on "The Odyssey of the Elements" Aegina, Greece (June 2008)
   Title: **The Odyssey of Dust in Local galaxies and the Early Universe**

3. International Conference on "A Century of Cosmology: Past, Present, and Future" Venice, Italy, (August 2007) Title: **The Evolution of Dust in the Early Universe**

4. Aspen Conference on "Supernova 1987A: 20 Years After" (February 2007)
   Title: **Infrared Observations of the SN Blast Wave-Equatorial Ring Interaction**.

5. International Conference on "Planetary Nebulae as Astronomical Tools", Gdansk, Poland (July 2005)
   Title: **The Evolution of Interstellar Dust**

6. International Symposium on "Astrophysics of Dust" – Estes, CO (May 2003)
   Title: **Probing Interstellar Dust Models Through SAXS (Small Angle X-Ray Scattering)**

7. International Symposium on "Universe Viewed in Gamma-rays" – Tokyo, Japan (Sept. 2002) Title: **The Extragalactic Background Light and the γ–Ray Opacity of the Universe**

PUBLICATIONS IN REFEREED JOURNALS

1. **The Diffuse Supernova Neutrino Background is Detectable in Super-Kamiokande**
2009, PhysRev D, submitted, Horiuchi Shunsaku, Beacom, John F., & Dwek, Eli

2. **Examining Dust Grain Models Using the Reddening and X-ray Dust Halo of Terzan 2**
2008, ApJ, submitted, Valencic, L. A., Smith, R. K., Dwek, E., et al.

3. **Constraints on Energy Spectra of Blazars Based on Recent EBL Limits from Galaxy Counts** 2008, ApJ Letters, 689, L93 (arXiv:0810.2522), F. Krennrich, E. Dwek, & A. Imran

4. **Infrared Echoes Reveal the Shock Breakout of the Cas A Supernova**
2008, ApJ, 685, 976, Eli Dwek & Richard G. Arendt

5. **The Origin and Evolution of Dust in High Redshift Galaxies**
2008, Il Nuovo Cimento, 122, 959, E. Dwek, F. Galliano, & A. P. Jones.

6. **Stellar Evolutionary Effects on the Abundances of PAHs and SN-Condensed Dust in Galaxies -** 2008, ApJ, 672, 214, Galliano, F., Dwek, E., & Chanial, P.

7. **Infrared and X-ray Evidence for Circumstellar Grain Destruction by the Blast Wave of SN 1987A** 2008, ApJ, 676, 1029, Dwek, E, Arendt, R.G., Bouchet, P., et al.

8. **Determination of the far-IR Cosmic background Using COBE/DIRBE and WHAM Data**
2007, ApJ, 667, 11, Odegard, N., Arendt, R.G., Dwek, E., et al.

9. **First Constraints on Source Counts at 350 Microns -**
2007, ApJ,665, 973, Khan, Sophia S. et al.

10. **The Evolution of Dust in the Early Universe with Application to the Galaxy SDSS J1148+5251**
2007, ApJ, 662, 927, Dwek E., Galliano, F., & Jones, A. P.

11. **Evolution of Dust in Primordial Supernova Remnants: Can Dust Grains Formed in the Ejecta Survive and be Injected into the Early Interstellar Medium? -**
2007, ApJ, 666, 995, Nozawa, T., Kozasa, T., Habe, A., Dwek, E., et al.

12. **SN 1987A After 18 Years: Mid-Infrared GEMINI and SPITZER Observations of the Remnant** Bouchet, P., Dwek, E. et al. 2006, ApJ, 650, 212

13. **The Near Infrared Background: Interplanetary Dust or Primordial Stars? -**
2005, ApJ, 635, 784, Dwek, Eli, Arendt, Richard G., & Krennich, Frank

14. **Is There an Imprint of Primordial Stars in the TeV γ–Ray Spectrum of Blazars?**
2005, ApJ, 634,155, Dwek, Eli, Krennich, Frank, & Arendt, Richard G.

15. **On the Discovery of the First Galaxy Selected at 350 Microns**
2005, ApJ, 631, L9, Khan, Sophia S. et al.

16. **Simultaneous Constraints on the Spectrum of the Extragalactic Background Light and the Intrinsic TeV Spectra of Mrk 421, Mrk 501, and H1426+428**
2005, ApJ, 618, 657, Dwek, Eli, Krennich, Frank

17. **Galactic Center Extinction: Evidence for Metallic Needles in the General ISM** 2004, ApJL,611, L109: Dwek, Eli

18. **The Detection of Cold Dust in Cas A: Evidence for the formation of Metallic Needles in the Ejecta** – 2004, ApJ, 607, 848 Dwek, Eli

19. **Interstellar Dust Models Consistent With Extinction, Emission, and Abundance Constraints** – 2004, ApJS, 152, 211: Zubko, V., Dwek, E, & Arendt, R. G

20. **An Empirical Decomposition of Near-Infrared Emission into Galactic and Extragalactic Components**– 2003, ApJ, 585, 305: Arendt, Richard G., & Dwek, Eli

21. **The Zodiacal Emission Spectrum as Determined by COBE and Its Implications**– 2002, ApJ, 578, 1009: Fixsen,D.J., & Dwek,Eli

22. **The Cosmic Radio and Infrared Backgrounds Connection** 2002, ApJ, 575, 7: Dwek,Eli, & Barker,Michael K.

23. **Dust in the Tycho, Kepler and Crab supernova remnant** - 2001, A&A, 373, 281: Douvion,T., Lagage,P.O., Cesarsky,C.J., & Dwek,E.

24. **X-Ray Halos and Large Grains in the Diffuse Interstellar Medium** 2001, ApJ, 550, L201: Witt,AdolfN., Smith,RandallK., & Dwek,Eli

25. **The Cosmic Infrared Background: Measurements and Implications** 2001, ARA&A, 39, 249: Hauser,MichaelG., & Dwek,Eli

26. **Infrared Properties of Molecular Cirrus. II. Cloud-to-Cloud Variations in Graphite and Polycyclic Aromatic Hydrocarbon Content** 2000, ApJ, 536, 831: Verter,Frances, Magnani,Loris, Dwek,Eli, & Rickard,LeeJ.

27. **Analytical Approximations for Calculating the Escape and Absorption of Radiation in Clumpy Dusty Environments**– 1999, ApJ, 523, 265: Városi,Frank, & Dwek,Eli

28. **Newly Synthesized Elements and Pristine Dust in the Cassiopeia A Supernova Remnant**– 1999, ApJ, 521, 234: Arendt,R.G., Dwek,E., & Moseley,S.H.

29. **A Tentative Detection of the Cosmic Infrared Background at 3.5 μm from COBE/DIRBE Observations**– 1998, ApJ, 508, L9: Dwek,E., & Arendt,R.G.

30. **The COBE Diffuse Infrared Background Experiment Search for the Cosmic Infrared Background. I. Limits and Detections**– 1998, ApJ, 508, 25: Hauser,M.G., Arendt,R.G., Kelsall,T., Dwek,E. et al.

31. **The COBE Diffuse Infrared Background Experiment Search for the Cosmic Infrared Background. II. Model of the Interplanetary Dust Cloud**– 1998, ApJ, 508, 44: Kelsall,T., Weiland,J.L., Franz,B.A., Reach,W.T., Arendt,R.G., Dwek,E. et al.

32. **The COBE Diffuse Infrared Background Experiment Search for the Cosmic Infrared Background. III. Separation of Galactic Emission from the Infrared Sky Brightness**– 1998, ApJ, 508, 74: Arendt,R.G., Odegard,N., Weiland,J.L., Sodroski,T.J., Hauser,M.G., Dwek,E. et al.

33. **The COBE Diffuse Infrared Background Experiment Search for the Cosmic Infrared Background. IV. Cosmological Implications**– 1998, ApJ, 508, 106: Dwek,E., Arendt,R.G., Hauser,M.G. et al.

34. **The Spectrum of the Extragalactic Far-Infrared Background from the COBE FIRAS Observations**– 1998, ApJ, 508, 123: Fixsen,D.J., Dwek,E., Mather,J.C., Bennett,C.L.,& Shafer,R.A.

35. **Soft X-Ray Scattering and Halos from Dust**– 1998, ApJ, 503, 831: Smith,RandallK., & Dwek,Eli

36. **The Evolution of the Elemental Abundances in the Gas and Dust Phases of the Galaxy**– 1998, ApJ, 501, 643: Dwek,Eli

37. **Dust Composition, Energetics, and Morphology of the Galactic Center**– 1997, ApJ, 483, 798: Chan,Kin-Wing, Moseley,S.H., Casey,S., Harrington,J.P., Dwek,E. et al.

38. **Can Composite Fluffy Dust Particles Solve the Interstellar Carbon Crisis?**– 1997, ApJ, 484, 779: Dwek,Eli

39. **A Three-dimensional Decomposition of the Infrared Emission from Dust in the Milky Way**– 1997, ApJ, 480, 173: Sodroski,T.J., Odegard,N., Arendt,R.G., Dwek,E., Weiland,J.L., Hauser,M.G., & Kelsall,T.

40. **Detection and Characterization of Cold Interstellar Dust and Polycyclic Aromatic Hydrocarbon Emission, from COBE Observations**– 1997, ApJ, 475, 565: Dwek,E., et al.

41. **A Search for Star Formation in the Translucent Cloud MBM 40**– 1996, ApJ, 465, 825: Magnani,Loris et al.

42. **Energy Deposition and Photoelectric Emission from the Interaction of 10 eV to 1 MeV Photons with Interstellar Dust Particles**– 1996, ApJ, 459, 686: Dwek,Eli, & Smith,RandallK.

43. **COBE/DIRBE Observations of the Orion Constellation from the Near- to Far-Infrared**– 1996, ApJ, 456, 566: Wall,W.F et al.

44. **Cooling, Sputtering, and Infrared Emission from Dust Grains in Fast Nonradiative Shocks**– 1996, ApJ, 457, 244: Dwek,Eli, Foster,ScottM., & Vancura,Olaf

45. **The Fragmentation and Vaporization of Dust in Grain-Grain Collisions**– 1995, ApJ, 454, 254: Borkowski,KazimierzJ., & Dwek,Eli

46. **The Ratio of H 2 Column Density to 12CO Intensity in the Vicinity of the Galactic Center**– 1995, ApJ, 452, 262: Sodroski,T.J., Odegard,N., Dwek,E., Hauser M.G. et al.

47. **Far-Infrared Spectral Observations of the Galaxy by COBE**– 1995, ApJ, 451, 188: Reach,W.T., Dwek,E. et al.

48. **Morphology, near-infrared luminosity, and mass of the Galactic bulge from COBE DIRBE observations**– 1995, ApJ, 445, 716: Dwek,E., Arendt,R.G., Hauser,M.G., Kelsall,T. et al.

49. **On the determination of the cosmic infrared background radiation from the high-energy spectrum of extragalactic gamma-ray sources**– 1994, ApJ, 436, 696: Dwek,Eli, & Slavin,Jonathan

50. **A study of X-ray and infrared emissions from dusty nonradiative shock waves**– 1994ApJ, 431, 188 Vancura,Olaf; Raymond,JohnC.; Dwek,Eli et al.

51. **DIRBE evidence for a wrap in the interstellar dust layer and stellar disk of the Galaxy**– 1994ApJ...429L..69 Freudenreich,H.T.; Berriman,G.B.; Dwek,E.; Hauser,M.G. et al.

52. **Large-scale characteristics of interstellar dust from COBE DIRBE observations**–1994ApJ...428..638 Sodroski,T.J.; Bennett,C.; Boggess,N.; Dwek,E. et al.

53. **COBE diffuse infrared background experiment observations of the galactic bulge**–1994, ApJ...425L..81 Weiland,J.L.; Arendt,R.G.; Berriman,G.B.; Dwek,E. et al.

54. **COBE diffuse infrared background experiment observations of Galactic reddening and stellar populations**– 1994ApJ...425L..85 Arendt,R.G.; Berriman,G.B.; Boggess,N.; Dwek,E. et al.

55. **Infrared emission from X-ray and optically emitting regions in the Cygnus Loop supernova remnant**– 1992ApJ...400..562 Arendt,RichardG.; Dwek,Eli; Leisawitz,David

56. **The COBE mission - Its design and performance two years after launch**– 1992ApJ...397..420 Boggess,N.W.; Mather,J.C.; Weiss,R.; Bennett,C.L.; Cheng,E.S.; Dwek,E. et al.

57. **Dust and gas contributions to the energy output of SN 1987A on day 1153**–1992ApJ...389L..21 Dwek,E., Moseley,S.H. et al.

58. **Line fluorescence from the ring around supernova 1987A**
1992, ApJ, 387, 551: Dwek,Eli, & Felten,James E.

59. **Dust-gas interactions and the infrared emission from hot astrophysical plasmas**
1992ARA&A..30...11 Dwek,Eli, Arendt,RichardG.

60. **An infrared analysis of Puppis A**
1991ApJ...368..474 Arendt,RichardG.; Dwek,Eli; Petre,Robert

61. **The effects of compositional inhomogeneities and fractal dimension on the optical properties of astrophysical dust**– 1990, ApJ...360..142 Bazell,David; Dwek,Eli

62. **A preliminary measurement of the cosmic microwave background spectrum by the Cosmic Background Explorer (COBE) satellite**– 1990, ApJ...354L..37 Mather,J.C. et al.

63. **Infrared emission from dust in the Coma cluster of galaxies**
1990, ApJ...350..104 Dwek,Eli, Rephaeli,Yoel; Mather,JohnC.

64. **Comparative morphological analysis of Puppis A at radio, infrared, optical, and X-ray wavelengths** 1990, ApJ...350..266 Arendt,RichardG.; Dwek,Eli et al.

65. **Far-infrared spectrophotometry of SN 1987A - Days 265 and 267**– 1989, ApJ...347.1119 Moseley,S.H.; Dwek,E. et al

66. **Far-infrared observations of thermal dust emission from supernova 1987A**– 1989, Nature, 340, 697: Moseley,S.H., Dwek,E. et al.

67. **Are there detectable infrared arcs around supernova 1987A?**
1989, ApJ, 342, 300: Dwek,Eli, & Felten,JamesE.

68. **CO formation in the metal-rich ejecta of SN 1987A**
1989, ApJ...342..406 Petuchowski,S.J.; Dwek,E.; Allen,J.E.,Jr.; Nuth,J.A.,III

69. **Mystery SPOT in supernova 1987A - Reflection or fluorescence by an interstellar cloud?**– 1989, ApJ...340..943 Felten,JamesE.; Dwek,Eli; Viegas-Aldrovandi,SueliM.

70. **Infrared and optical evidence for a dust cloud behind supernova 1987A**
1989, Nature 339, 123: Felten,JamesE., & Dwek,Eli

71. **Dust energetics in the gas phases of the interstellar medium - The origin of the Galactic large-scale far-infrared emission observed by IRAS**– 1989, ApJ, 336, 762: Sodroski,T.J., Dwek,E., Hauser,M.G., & Kerr,F.J.

72. **Will dust black out SN 1987A?**– 1988, ApJ, 329, 814: Dwek,Eli

73. **Infrared observations of SN 1987A - Probing the ejecta and its surrounding medium**– 1988, PASAu, 7, 468: Dwek,E.

74. **Large-scale Galactic dust morphology and physical conditions from IRAS observations**– 1987, ApJ...322..101 Sodroski,T.J.; Dwek,E.; Hauser,M.G.; Kerr,F.J.

75. **The infrared diagnostic of a dusty plasma with applications to supernova remnants**
1987, ApJ, 322, 812: Dwek,Eli

76. **IRAS observations of supernova remnants - A comparison between their infrared and X-ray cooling rates** 1987ApJ...320L..27 Dwek,Eli, Petre,Robert; Szymkowiak,Andrew; Rice,WalterL.

77. **Physical processes and infrared emission from the Cassiopeia A supernova remnant**
1987ApJ...315..571 Dwek,E., Hauser,M.G.; Dinerstein,H.L.; Gillett,F.C.; Rice,W.L.

78. **Infrared cirrus and high-latitude molecular clouds**
1986ApJ...306L.101 Weiland,JanetL.; Blitz,Leo; Dwek,Eli; Hauser,M.G. et al.

79. **Temperature fluctuations and infrared emission from dust particles in a hot gas**
1986ApJ...302..363 Dwek, E.

80. **Molecular clouds and star formation in the inner galaxy - A comparison of CO, H II, and far-infrared surveys** 1986ApJ...301..398 Myers,P.C.; Dame,T.M.; Thaddeus,P.; Cohen,R.S.; Silverberg,R.F.; Dwek,E.; Hauser,M.G.

81. **The infrared echo of Type II supernovae with circumstellar dust shells. II - A probe into the presupernova evolution of the progenitor star** 1985, ApJ...297..719 Dwek,E.

82. **Submillimeter wavelength survey of the galactic plane from L = -5 deg to L = +62 deg - Structure and energetics of the inner disk**
1984ApJ...285...74 Hauser,M.G.; Silverberg,R.F.; Stier,M.T.; Kelsall,T.; Gezari,D.Y.; Dwek,E. et al.

83. **Infrared photometry of Comet Bowell and other comets**
1984ApJ...282..803 Ahearn,M.F.; Dwek,E.; Tokunaga,A.T.

84. **The evolution of the infrared emission from the Type II supernova 1980k in NGC 6946 - The dust formation model** 1983ApJ...274..168 Dwek,E., A'Hearn,M.F.; Becklin,E.E. et al.

85. **The infrared echo of a type II supernova with a circumstellar dust shell - Applications to SN 1979c and SN 1980k** 1983, ApJ...274..175 Dwek,E.

86. **A search for hot dust in the fast moving knots in Cassiopeia A** 1982, ApJ...255..552 Dinerstein,H.L.; Capps,R.W.; Dwek,E.; Werner,M.W.

87. **Where is the ice in comets?** 1981ApJ...248L.147 A'Hearn,M.F.; Dwek,E.; Tokunaga,A.T.

88. **The infrared emission from supernova condensates** 1981, ApJ...248..138 Dwek,E.; Werner,M.W.

89. **Cooling and evolution of adiabatic blast waves in a dusty medium** 1981, ApJ, 247, 614 Dwek,E.

90. **Infrared radiation from evaporating clouds** 1981ApJ...246..430 Dwek,E.

91. **The evolution of refractory interstellar grains in the solar neighborhood** 1980ApJ...239..193 Dwek,E., Scalo,J.M.

92. **Excitation mechanisms for the unidentified infrared emission features** 1980, ApJ...238..140 Dwek,E., Sellgren,K.; Soifer,B.T.; Werner,M.W.

93. **Interstellar depletions and the filling factor of the hot interstellar medium** 1979ApJ...233L..81 Dwek,E.; Scalo,J.M.

94. **The beryllium and boron abundance in the meteorites - A synthesis in interstellar grains** 1978ApJ...225L.149 Dwek,E.

95. **Proton-associated alpha-irradiation in the early solar system - A possible K-41 anomaly** 1978ApJ...221.1026 Dwek,E.

96. **Isotopic anomalies and proton irradiation in the early solar system** 1977ApJ...214..300 Clayton,D.D.; Dwek,E.; Woosley,S.E.

97. **Gamma-ray emission and nucleosynthesis of lithium by young pulsars** 1976ApJ...206L..59 Clayton,D.D.; Dwek,E.

98. **Solar models of low neutrino-counting rate - The Depleted Maxwellian tail** 1975ApJ...199..494 Clayton,D.D.; Dwek,E.; Newman,M.J.; Talbot,R.J.,Jr.