

Name: NOAM SOKER

Date: June 2022

RESUME

PERSONAL DETAILS

Name: Noam Soker
Place and Date of Birth: Israel, 2.9.1958
Marital Status: Married + 3
Citizenship Israel
Permanent Home Address: Shimshit, Israel
Home Telephone Number: 04-6012246 (054-5925995)
Office Address and Phone: Department of Physics
Technion , Haifa 32000, Israel
Tel.: 04-8293858
Chair: Charles Wolfson Academic Chair
Electronic Address: soker@physics.technion.ac.il
Telefax Number: 04-8295755

ACADEMIC DEGREES

| <u>Dates</u> | <u>Name of Institution and Department</u> | <u>Degree</u> |
|---------------------|--|---|
| 1975-1977 | Department of Mathematics and Physics, Oranim, University of Haifa | Beginning of Bachelor Degree in Physics |
| 1980-1982 | Department of Physics, Technion | Finishing Bachelor in Physics B.Sc. awarded: 4th May 1983 – Summa Cum Laude |
| 1982-1986 | Department of Physics, Technion | Doctoral studies Ph.D. awarded: 20th April 1986 |

ACADEMIC APPOINTMENTS

| <u>Dates</u> | <u>Name of Institution and Department</u> | <u>Rank</u> |
|---------------------------------|--|---------------------|
| July-August 1984 | Astronomical Institute, University of Amsterdam, Amsterdam – Holland | Visiting Researcher |
| September 1986 - August 1989 | Department of Astronomy, University of Virginia, Charlottesville, Virginia, U.S.A. | Post-doctoral |
| September 1989 - September 1992 | Harvard-Smithsonian Center for Astrophysics, Harvard University, Cambridge, MA, U.S.A. | Post-doctoral |
| October 1992 - May 1994 | Oranim - University of Haifa, Science Education Department | Senior Lecturer |
| May 1994 - December 1998 | Oranim - University of Haifa, Science Education Department | Associate Professor |
| December 1998- September 2003 | Oranim - University of Haifa, Science Education Department | Full Professor |
| October 2003 | Department of Physics, Technion | Full Professor |

PROFESSIONAL EXPERIENCE

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|------------------------------|--|
| October 1994 – October 1998 | Chairman of the Mathematics-Physics Department, Oranim - University of Haifa |
| May 2005 – September 2009 | Head of the undergraduate program at the Physics Dept. |
| October 2009 – December 2015 | Dean of the Faculty of Physics, Technion |
| August 2016 – September 2021 | Head of Physics Program in Guangdong Technion Israel Institute of Technology (GTIIT) |
| October 2017 – | Head of the Center for Pre-University Studies, Technion |

RESEARCH INTERESTS

- **Hot gas in galaxy clusters:** Heating the intra-cluster medium with jets launched from super-massive black holes, and feeding the black hole with cold gas. Specific contributions: the cold feedback mechanism; inflation of 'fat bubbles'.
- **The death of massive stars:** Core collapse supernovae: Specific contributions: the jittering-jet model for explosion;
- **Type Ia supernovae.** Specific contributions: The core-degenerate model.
- **The death of solar-like stars:** Planetary nebulae, and the destruction of planets. Specific contributions: shaping planetary nebulae by stellar companions and the influence of planets on stellar evolution.
- **Intermediate - Luminosity Optical Transients (ILOTs):** Eruptive stars in the gas between Novae and Supernovae. Specific contributions: Modeling the eruption by mass transfer from an unstable star to a main sequence companion.
- **Eta Carinae:** The formation of the nebula around one of the most massive binary systems in the galaxy, and the strange behavior of the binary system. Specific

contributions: The role of mass transfer in the present behavior of the system and during the Great Eruption of the 19th century.

TEACHING EXPERIENCE

| | <u>Title</u> | <u>Year</u> | <u>Type</u> | <u>Level</u> |
|-----|---|--|--------------------|---------------------|
| 1) | Current Topics in Astronomy | Academic Year 1988-1989 Astronomy, Univ. of Virginia | Weekly 1 hour | Master + Doctor |
| 2) | Physics 0 (Oranim) | 1992-2000 (1 semester) | Weekly 6 h. | B.Sc. |
| 3) | EM, Waves and Optics(Oranim) | 1993 (1 semester) | Weekly 4 h. | B.Sc. |
| 4) | Introduction to Astronomy (U. of Haifa) | 1993-2000 (1 semester) | Weekly 2 h. | B.A. |
| 5) | Introduction to Statistical Mechanics (Oranim) | 1994 (1 semester) | Weekly 2 h. | B.Sc. |
| 6) | Introduction to Quantum Mechanics (Oranim) | 1994 (1 semester) | Weekly 4 h. | B.Sc. |
| 7) | Nuclear Reactor and Nuclear Weapon (U. of Haifa) | 1995-2000 (1 semester) | Weekly 2 h. | B.A. |
| 8) | Introduction to Nuclear Physics (Oranim) | 1995; 97; 99; 2001 (1 semester) | Weekly 4 h. | B.Sc. |
| 9) | Introduction to Physics of 20th Century (U. of Haifa) | 1996-2000 (2 semesters) | Weekly 2 h. | B.A. |
| 10) | Special Relativity (Oranum) | 1998; 2000 (1 semester) | Weekly 2 h. | B.Sc. |
| 11) | Astrophysics (Oranum) | 2000 (1 semester) | Weekly 2 h. | B.Sc. |
| 12) | Physics 1 for biologists (Oranum) | 2002 (1 semester) | Weekly 5 h | B. Sc |
| 13) | Physics 1m/1P (Technion) | 2003-2009; 2015 | Weekly 3 h | B. Sc |
| 14) | Physics 2m (Technion) | 2004-2007 | Weekly 4 h | B. Sc |

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|-----|--|----------------------|----------------|---------------|
| 15) | Stellar Physics 1 | 2006,09 | Weekly 3h | PhD+ B.Sc. |
| 16) | Topics in Stellar Evolution | 2007 | Weekly 2h | PhD |
| 17) | Astrophysics and Cosmology (Technion) | 2007-10 (1 semester) | Weekly 3 h. | B.Sc. |
| 18) | Black Holes (Technion) | 2011 (1 semester) | Weekly 2 h. | B.Sc. |

PUBLIC PROFESSIONAL ACTIVITIES

Refereeing for Journals:

Refereeing of Papers for the Following Journals:

- Astronomical Journal
- Astrophysical Journal
- Astrophysical Journal Letters
- Nature
- Science
- Publications of the Astronomical Society of the Pacific
- Monthly Notices of the Royal Astronomical Society
- Astronomy & Astrophysics

High School Teaching:

1982-1986 Half Time Teaching: Mathematics, Physics and Chemistry:
Grades 7-12: Naaman High School

LONG PROFESSIONAL VISITS ABROAD

Aug 01-Feb 02 Department of Astronomy, University of Virginia,
Charlottesville, Virginia, U.S.A. - 6 months Sabbatical.

CONFERENCES

Plenary or invited talks:

| | Meeting | Place and date | Title |
|----|--|--|---|
| 1) | ESO/CTIO Workshop: Mass Loss on the AGB and Beyond | La Sarena, Chile, January 21-24, 1992 | Common Envelopes and Axisymmetrical Mass Loss |
| 2) | Magnetic Effects in Accretion and Cooling Flows (International Workshop) | Technion, Haifa, Israel, June 3-6, 1996 | Magnetic Fields and Inflow in Cooling Flows |
| 3) | Galactic and Cluster Cooling Flows (Inter-national Workshop) | Oranim - University of Haifa, Israel, August 5-8, 1996 | Magnetic Fields and Inflow in Cooling Flows |

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| 4) | Astrophysical Fluids - From Atomic Nuclei to Stars and Galaxies (International Meeting) | Technion, Haifa, Israel, January 12-15, 1998 | Interaction of Planets with AGB and RGB Stars |
| 5) | Asymmetrical PNs II | MIT, MA., U.S.A., August 3-6, 1999 | The Transition to Axisymmetrical Mass Loss |
| 6) | Post AGB Objects | Torun, Poland, July 5-7, 2000 | Planets and Axisymmetrical Mass Loss |
| 7) | Planetary Nebulae | Canberra, Australia November 19-23, 2001 | Planetary Nebulae in the Scheme of Binary Evolution |
| 8) | Symbiotic Stars: Probing Stellar Evolution | La Palma, Spain, May 27-31, 2002 | Evolution with Mass Transfer |
| 9) | IAU Symposium 219: Stars as Suns: Activity, Evolution and Planets | Australia, July 21-25, 2003 | Influence of Planets on Parent Stars: Angular Momentum |
| 10) | IAU Colloquium 194: Compact Binaries in the Galaxy and Beyond | La Paz, Baja California Sur, Mexico, November 17-22, 2003 | Energy and Angular Momentum Deposition During Common Envelope Evolution |
| 11) | Planetary Nebulae as Astronomical Tools | Gdansk, Poland, June 28, July 2, 2005 | Can we ignore magnetic fields in studies of PN formation, shaping and interaction with the ISM? |
| 12) | The Nature of V838 Mon and its Light Echo | La Palma, Spain, May 16-19, 2006 | On the main sequence merger model |
| 13) | Star-disk interaction in young stars | Grenoble, France, May 21-25 2007 | The role of thermal pressure in jet launching |
| 14) | Asymmetrical Planetary Nebulae IV | La Palma, Spain June 18-22, 2007 | Member in a Panel Discussion |
| 15) | The Monster's Fiery Breath: Feedback in Galaxies, Groups, and Clusters | Madison, USA June 1-5, 2009 | The moderate cooling flow model |
| 16) | The Fourth Meeting on Hot Subdwarf Stars and Related Objects | Shanghai, China July 20-24, 2009 | The Role of Planets in the Formation of EHB Stars |
| 17) | Astrophysical Outflows and Associated Accretion Phenomena | Rio de Janeiro August 6-7, 2009 | Are jets rotating at the launching?" |
| 18) | Evolution of galaxies, their central black holes and their large-scale environment | Potsdam September 20-24, 2010 | A Moderate Cooling Flow Phase at Galaxy Formation |
| 19) | Planets Around Stellar Remnants | Arecibo, January , 23-27 2012 | Transient events from the destruction of planets |
| 20) | Galaxy Clusters as Giant Cosmic Laboratories | Madrid, May, 21-23, 2012 | The cold feedback mechanism |
| 21) | The death of stars and the lives of galaxies | Santiago, April 8-12, 2013 | The summary talk |
| 22) | Interacting Binaries and Isolated Neutron Stars | Cefalu, Sicily, June 9-14, 2014 | The Core-Degenerate Scenario |

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| 23) | Mondello Workshop 2016: Frontier research in astrophysics II | Palermo, Italy, May 23-28, 2016 | Jet-Feedback Mechanism, from supernovae to clusters of galaxies |
| 24) | Supernova Remnants: An Odyssey in Space after Stellar death | Crete, Greece, Juner 6-10, 2016 | The role of jets in exploding supernovae and shaping their remnants |
| 25) | The asymmetrical planetary nebulae (APN) VII. | Hong Kong, December 4-8, 2017 | Planets, Planetary Nebulae, and Intermediate Luminosity Optical Transients (ILOTs) |
| 26) | Progenitors of Type Ia Supernovae | Lijiang, China, August 5-9, 2019 | SN Ia scenarios in 2019: a rising demand for clean and symmetrical explosions |
| 27) | WorkPlaNS II: Workshop for Planetary Nebula observations | Lorentz Center, Leiden December 16010, 2019 | Shaping of planetary nebulae: Jets and relation to other objects |

A large impact by presenting unique views/models/ideas and leading discussions

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| 1) | The asymmetrical planetary nebulae (APN) series which I initiated in 1994 (8 meetings till 2021). | Oranim 1994; MIT 1999; Seattle 2003; La Palma; 2007; Manchester 2010; Mexico 2013; Hong Kong 2017; Zoom 2021 | Very active member on the organizing committees; chairing sessions; leading discussions |
| 2) | Supernovae Illuminating the Universe | Garching, Germany, September 12-14, 2012 | The Core-Degenerate (CD) scenario for SN Ia; The Jittering-Jets model for core-collapse SNe. |
| 2) | F.O.E. fifty-one ergs | Raleigh, NC, May 13-17, 2013 | CD scenario; Jittering-jets model |
| 3) | Stellar Tango at the Rockies 14 | Lake Louise, Canada, March 23-28, 2014 | Merger during the CE phase; Jets in CEs |
| 4) | Characterizing Planetary Systems across the HR Diagram | Cambridge, UK, July 28-31, 2014 | Planets – star interaction; planet-star merger |
| 5) | Supernovae in the local Universe | Coffs Harbour, Australia, August 11-15, 2014 | CD scenario; jittering-jets model |
| 6) | The physics of evolved stars; A conference dedicated to the memory of Olivier Chesneau". | Nice, France, June 8-12, 2015 | The grazing-envelope evolution (GEE) |
| 7) | The impact of binaries on stellar evolution | Garching, Germany, July 3-7, 2017 | Presented a daily summary of the meeting |
| 8) | Shocking Supernovae: surrounding interactions and unusual events | Stockholm, Sweden, May 28-June1, 2018 | Presented a daily summary of the meeting, and a final summary (uninvited) |
| 10) | Common Envelope Physics and Outcomes (CEPO 2021) | Zoom, August 30 – September 3, 2021 | Co-chair of the meeting and chair of a session with discussion. |

HONORS

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| 1981 | Awards from the Israel Association of Physics |
| 1983 | President's List Honor Student Scholarship, Technion |
| 1985 | Moshe Ben-Sira Fellowship received as an honor student, Technion |
| 1992-1995 | Alon Fellowship |
| 2011 | Yanay Prize for Academic Excellence at the Technion |
| -2022 | Excellence in teaching (2015,2020,2021) at the Technion |

2022

Morton and Beverley Rechler Prize for Excellence in Research at the Technion

GRADUATE STUDENTS

| Student's Name | Title of Thesis/ Dissertation | Degree | Date |
|-------------------------------------|--|---------------|----------------|
| David L. Blank (U. of Virginia) | Seyfert Galaxy Evolution | Master | May 1989 |
| Philip C. Plait (U. of Virginia) | The Electron Density Profile of the Planetary Nebula NGC 6826 | Master | May 1990 |
| Essam Zoabi | The Intracluster Medium (supervision with Prof. Oded Regev) | PhD | 1998 |
| Muhammad Akashi | X-Ray Emission From Colliding Winds In Planetary Nebulae (supervision with Prof. Ehud Behar) | PhD | October 2008 |
| Assaf Sternberg | Shaping of Planetary Nebulae and Radio Bubbles in Galaxy Clusters | PhD | March 2009 |
| Amit Kashi | The Periastron Passage of the Binary Star Eta Carinae | PhD | September 2011 |
| Carmit Gordon Lahav | Correlations of Black Hole Mass with Host Galaxy Properties | Master | February 2012 |
| Marjan Ilkov | Common envelope WD-core merger as Type Ia supernova progenitors | Master | September 2012 |
| Danny Tsebrenko | Interaction of Stellar Winds with Circumstellar Matter | Master | October 2012 |
| | Interaction of supernova ejecta with asymmetrical circumstellar matter | PhD | October 2015 |
| Michael Refaelovich | Chains of X-ray deficient bubbles as consequence of vortices fragmentation | Master | October 2012 |
| Oded Papish | Expel of gravitationally bound mass by fast jets from compact objects | PhD | September 2015 |
| Liron Mcley | Stellar Instability and Intermediate Luminosity Optical Transients (ILOTs) | Master | November 2014 |
| Shlomi Hillel | Dynamics of Clumps in the Intracluster Medium | PhD | January 2016 |
| Avishai Gilkis | Heating of a Medium by Jets from a Compact Object | Master | October 2012 |
| | Intermittent Accretion Disk Production in Core Collapse Supernovae | PhD | September 2016 |
| Efrat Sabach | Transient Event from a Core-WD Merger | Master | October 2013 |
| | Mass Transfer in Stellar Binary Systems Resulting in Peculiar Objects | PhD | May 2018 |
| Sagiv Shiber | The Role of Energetic Jets in Late Stages of Stellar Evolution | PhD | April 2019 |
| Naveh Levanon | Evolution, merging and explosion of degenerate stars as Type Ia supernovae | PhD | September 2019 |
| Roni Gofman | Energizing Supernovae by a Central Engine | Master | January 2020 |

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| Noa Kaplan | Energizing Supernovae and their Light Curves with Jets | Master | April 2020 |
| Aldana Grichener | High Energy Processes in Common Envelope Jets Supernovae | Master | March 2021 |
| | Common envelope jets supernovae: physics and outcomes | PhD | |
| Dmitry Shishkin | The influence of core convection on core collapse supernova properties | Master | March 2022 |
| | | PhD | |
| Tamar Cohen | The final phase of common envelope jet supernova impostors | Master | |

POSTDOCTORAL FELLOW:

Fabio Pizzolato 2004-2007
Adam Frankowski 2008-2010
Ealeal Bear 2009-2011

RESEARCH GRANTS

| | | | |
|------|---|---|--|
| 1990 | "Wind Interaction in Planetary Nebulae" | Soker, N. and Raymond, J.C. | Grant from NASA \$31,937 |
| 1990 | "UV Spectra of Magnetically Disturbed Accretion Disks" | Raymond, J.C., van Ballegooijen, A., Soker, N., Nauche, C.W. and Miller, G. | Grant from NASA \$33,000 |
| 1990 | "The Eclipsing Intermediate Polar LB 1800" | Raymond, J.C., Buckley, D.A., Mauche, C.W., Miller, G. and Soker, N. | Grant from NASA \$12,600 |
| 1991 | "Resonant Excitation of P- and G-Waves in Common envelopes" | Soker, N. | Grant from NASA \$29,145 |
| 1993 | X-ray Filaments in Cluster Cooling Flows | Soker, N. and Regev, O. | Grant: the Technion- Univ. of Haifa Foundation \$5,000 |

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| 1994-1997 | X-ray Filaments in Cluster Cooling Flows | Soker, N. and Regev, O. | Grant: Israel Science Foundation, 3 years, \$30,000/year |
| 1997-2000 | Jets and Axisymmetrical Structures in Planetary Nebulae and Young Stellar Objects | Regev, O. and Soker, N. | Grant: Israel Science Foundation, 3 years, \$ 35,000/year |
| 1999-2002 | The Role of Binary Companions in Shaping Circumstellar Media | Soker, N. and Rappaport, S. | Grant from the US-Israel BSF \$ 22,000/year |

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| 2002-2005 | Mass ejection in Late Stages of Stellar Evolution | Soker, N. | Grant: Israel Science Foundation; 3 years, \$ 30,000/ year |
| 2008-2012 | Connecting Shaping of Planetary Nebulae, Eta Carinae, and Cooling Flows | Soker, N. | Grant: Israel Science Foundation; 4 years, \$ 30,000/ year |
| 2011-2015 | Winds interaction in planetary nebulae and related objects | Soker, N. and Kastner, J. H. | Grant: US-Israel BSF; 4 years, \$ 19,000/ year |
| 2016-2020 | Shaping planetary nebulae by triple stellar systems | Soker, N. | Grant: Israel Science Foundation; 4 years, \$ 40,000/ year |
| 2017-2020 | Shaping Planetary nebulae by swallowing a binary system | Soker, N. and Schreier, R. (RAFAEL) | Pazy Fund (Israel Atomic Energy Commission); 4 years, \$ 60,000/ year |
| 2020-2024 | Post-AGB binary systems with jets and their implications to the shaping of planetary nebulae by jets from binary systems | Soker, N. | Grant: Israel Science Foundation; 4 years, \$ 45,000/ year |
| 2021-2024 | Shaping planetary nebulae by post-common envelope jets | Soker, N. and Schreier, R. (RAFAEL) | Pazy Fund (Israel Atomic Energy Commission); 4 years, \$ 50,000/ year |

PUBLICATIONS

Thesis:

"Accretion from an Inhomogeneous Medium", 153 pages, in Hebrew.

Supervisor: Prof. Mario Livio.

Submitted to the Senate of the Technion in January 1986.

The work was published in the papers: 1, 2, 3, 4, 5, 6, 8, 9 in the list of refereed publications below.

Review Papers:

Soker, N., "Planetary Nebulae", Scientific American, May, pp. 78-85 (1992).

Edited Books:

1. Harpaz, A. and Soker, N. (Eds.) Asymmetrical Planetary Nebulae. Annals of the Israel Physical Society, Vol. 11, University of Haifa at Oranim Conference, Israel, 306 pages (1995).
2. Soker, N. (Ed.) Galactic and Cluster Cooling Flows. Astronomical Society of the Pacific Conference Series, Vol. 115, Proceedings of a Conference held at the University of Haifa at Oranim, Israel, 5-8 August 1996, 227 pages (1997).
3. Kastner, J.H., Soker, N. and Rappaport, S. (Eds.) Asymmetrical Planetary Nebulae II: From Origins to Microstructures. Astronomical Society of the Pacific Conference Series, Vol. 199, Proceedings of a Conference held at M.I.T., MA., U.S.A., August 3-6, 1999, 463 pages (2000).
4. Reiprich, T., Kempner, J., and Soker, N. (Eds) Riddle of Cooling Flows in Galaxies and Clusters off Galaxies, held in Charlottesville, VA, May 31 – June 4, 2003. Published electronically: <http://www.astro.virginia.edu/coolflow/> and on ADS (2004).
5. Meixner, M., Kastner, J.H., Soker, N. and Balick, B. (Eds.) Asymmetrical Planetary Nebulae III. Astronomical Society of the Pacific Conference Series, Vol. 313, in press. Proceedings of a Conference held at Washington State, U.S.A., July 28 – August 1, 2003 (2004).

Papers in refereed journals:

1. Livio, M., and Soker, N. "Star-Planet Systems as Progenitors of Cataclysmic Binaries: Tidal Effects", Astronomy and Astrophysics, **125**, L12-L15 (1983).
2. Livio, M., and Soker, N. "Star-Planet Systems as possible Progenitors of Cataclysmic Binaries", Monthly Notices of the Royal Astronomical Society, **208**, 763-781 (1984).

3. Livio, M., and Soker, N. "On the Masses of the White Dwarfs in Cataclysmic Variables", Monthly Notices of the Royal Astronomical Society, **208**, 783-797 (1984).
4. Soker, N., Harpaz, A., and Livio, M. "The Evolution of a Star-Planet System in the Double Core Phase", Monthly Notices of the Royal Astronomical Society, **210**, 189-195 (1984).
5. Soker, N., and Livio, M. "On Accretion from a Medium Containing a Density Gradient", Monthly Notices of the Royal Astronomical Society, **211**, 927-932 (1984).
6. Livio, M., Soker, N., de Kool, M., and Savonije, G.J. "On Accretion of Angular Momentum from an Inhomogeneous Medium", Monthly Notices of the Royal Astronomical Society, **218**, 593-604 (1986).
7. Livio, M., Soker, N., and Dgani, R. "On the Stream-Disk Interaction in Accreting Compact Objects", Astrophysical Journal, **305**, 267-280 (1986).
8. Soker, N., Livio, M., de Kool, M., and Savonije, G.J. "Accretion of Angular Momentum from an Inhomogeneous Medium II: Isothermal Flow", Monthly Notices of the Royal Astronomical Society, **221**, 445-452 (1986).
9. Livio, M., Soker, N., de Kool, M., and Savonije, G.J. "Accretion of Angular Momentum from an Inhomogeneous Medium III: General Case and Observational Consequences", Monthly Notices of the Royal Astronomical Society, **222**, 235-250 (1986).
10. Soker, N., Regev, O., Livio, M., and Shara, M.M. "Massive Disk Formation Resulting from the Collision of a Main Sequence Star with a White Dwarf in a Globular Cluster Core", Astrophysical Journal, **318**, 760-766 (1987).
11. Soker, N., and Sarazin, C.L. "Cooling Flows and the Stability of Radio Jets", Astrophysical Journal, **327**, 66-81 (1988).
12. Soker, N., O'Dea, C.P., and Sarazin, C.L. "Numerical Simulations of the Bending of Narrow Angle Tail Radio Jets by Ram Pressure or Pressure Gradients", Astrophysical Journal, **327**, 627-638 (1988).
13. Livio, M., and Soker, N. "The Common Envelope Phase in the Evolution of Binary Stars", Astrophysical Journal, **329**, 764-779 (1988).
14. Dgani, R., Livio, M., and Soker, N. "On the Stream-Accretion Disk Interaction: Response to the Increased Mass Transfer Rate", Astrophysical Journal, **336**, 350-359 (1989).
15. Soker, N., and Livio, M. "Interacting Winds and the Shaping of Planetary Nebulae", Astrophysical Journal, **339**, 268-278 (1989).
16. Soker, N. "Early Shaping of Asymmetrical Planetary Nebulae", Astrophysical Journal, **340**, 927-931 (1989).

17. Balbus, S.A., and Soker, N. "Theory of Local Thermal Instability in Spherical Systems", *Astrophysical Journal*, **341**, 611-639 (1989).
18. Chevalier, R.A., and Soker, N. "Asymmetric Envelope Expansion of Supernova 1987A", *Astrophysical Journal*, **341**, 867-882 (1989).
19. Soker, N., and Sarazin, C.L. "The Role of Magnetic Fields in Cluster Cooling Flows", *Astrophysical Journal*, **348**, 73-84 (1990).
20. Soker, N. "On the Formation of Ansaе in Planetary Nebulae", *Astronomical Journal*, **99**, 1869-1882 (1990).
21. Plait, P., and Soker, N. "The Evolution of the Planetary Nebula NGC 6826", *Astrophysical Journal*, **99**, 1883-1890 (1990).
22. Soker, N. "H-Function Evolution in Collisionless Self-Gravitating Systems", *Publications of the Astronomical Society of the Pacific*, **102**, 639-645 (1990).
23. Balbus, S.A., and Soker, N. "Resonant Excitation of Internal Gravity Waves in Cluster Cooling Flows", *Astrophysical Journal*, **357**, 353-366 (1990).
24. Soker, N. "Stability Analysis of the Accretion Line", *Astrophysical Journal*, **358**, 545-550 (1990).
25. Borkowski, K.J., Sarazin, C.L., and Soker, N. "Interaction of Planetary Nebulae with the Interstellar Medium", *Astrophysical Journal*, **360**, 173-183 (1990).
26. Abramowics, M.A., Livio, M., Soker, N., and Szuskiwicz, E. "Local Stability of Thick Accretion Disks. II. Viscous and Radiative Effects", *Astronomy and Astrophysics*, **239**, 399-403 (1990).
27. Soker, N. "Resonant Interaction in Common Envelopes", *Astrophysical Journal*, **367**, 593-600 (1991).
28. Soker, N., Bregman, J.N., and Sarazin, C.L. "Stripped Interstellar Gas in Cluster Cooling Flows", *Astrophysical Journal*, **368**, 341-347 (1991).
29. Whitney, B.A., Soker, N., and Clayton, G.C. "Model for R Coronae Borealis Stars", *Astrophysical Journal*, **102**, 284-288 (1991).
30. Soker, N. "Nonlinear Instability of the Accretion Line", *Astrophysical Journal*, **376**, 750-756 (1991).
31. Soker, N., Borkowski, K.J. and Sarazin, C.L. "Interaction of Planetary Nebulae with the Interstellar Medium: Theory", *Astronomical Journal*, **102**, 1381-1392 (1991).
32. Livio, M., Soker, N., Matsuda, T., and Anzer, U. "On the Flip-Flop Instability of Bondi-Hoyle Accretion Flows", *Monthly Notices of the Royal Astronomical Society*, **253**, 633-636 (1992).

33. Soker, N. "Excitation of Pressure Modes in Common Envelopes", *Astrophysical Journal*, **386**, 190-196 (1992).
34. Soker, N. "Jet Formation in the Transition from the AGB to Planetary Nebulae", *Astrophysical Journal*, **389**, 628-634 (1992).
35. Soker, N. "Excitation of Gravity Waves in Common Envelopes", *Astrophysical Journal*, **399**, 185-191 (1992).
36. Soker, N., and Harpaz, A. "Can a Single AGB Star Form an Axially Symmetric Planetary Nebula?", *Publications of the Astronomical Society of the Pacific*, **104**, 923-930 (1992).
37. Soker, N., Zucker, D.B., and Balick, B. "The Density Profile of the Elliptical Planetary Nebula NGC 3242", *Astronomical Journal*, **104**, 2151-2160 (1992).
38. Vrtilik, S.D., Soker, N., and Raymond, J.C. "Effects of Inclination Angle on the Spectra of X-Ray Binaries", *Astrophysical Journal*, **404**, 696-705 (1993).
39. Zucker, D.B., and Soker, N. "The Morphology and Interaction with the ISM of the Planetary Nebula IC 4593", *Astrophysical Journal*, **408**, 579-585 (1993).
40. Soker, N. "Effects of Convection on Pressure Wave Excitation in Common Envelopes", *Astrophysical Journal*, **417**, 347-350 (1993).
41. Dgani, R. and Soker, N. "Nonlinear Instability of Colliding Winds in a Double Star System", *Astronomy and Astrophysics*, **282**, 54-60 (1994).
42. Soker, N. "The Expected Morphology of the Solar System Planetary Nebula", *Publications of the Astronomical Society of the Pacific*, **106**, 59-62 (1994).
43. Soker, N. and Livio, M. "Disks and Jets in Planetary Nebulae", *Astrophysical Journal*, **421**, 219 (1994).
44. Soker, N. "Heat Conduction Fronts in Planetary Nebulae", *Astronomical Journal*, **107**, 276-279 (1994).
45. Dgani, R. and Soker, N. "Radiative Shock Overstability of Finite Sized Objects", *Astrophysical Journal*, **434**, 262-267 (1994).
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