

Date:28/5/2017

## **RESUME**

**Full name: Hagai Binyamin Perets**

Identity No.: 033751835

Date and place of birth: Haifa, Israel 22/4/1977

Marital status: Married + 3 kids

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## **ACADEMIC DEGREES**

PhD: Physics, Weizmann Institute of Science, 2009

MSc: Physics, Hebrew University in Jerusalem, 2004

“Amirim Ruah” honors program: Hebrew university in Jerusalem, 2001-2004

BA: Mathematics and Science, Open University of Israel, 2001, cum Laude

## **ACADEMIC APPOINTMENTS**

2012- : Assistant Professor, Technion – Israel Institute of Technology

2009-2012: Rothschild, BIKURA, CfA, Fulbright prize postdoc fellow at the Harvard Institute for Theory & Computation

2005-2009: Weizmann Institute of Science, TA in the graduate course astrophysics & Cosmology

2003-2004: Hebrew University in Jerusalem, Lab TA, Physics 2nd year lab

## **PROFESSIONAL EXPERIENCE**

2001-2002: Geshar organization, group moderator and seminary-head

1998-2001: Mathematical and algorithmic research Officer and team leader, First Lieutenant, IDF (intelligence)

1996-1998: Mathematical and algorithmic researcher, IDF (intelligence)

## **RESEARCH INTERESTS**

**Astrophysics:** Galactic, stellar, and planetary dynamics; Planet formation; Solar system; stellar evolution, Supernovae; Interstellar dust and astro-chemistry; astrobiology

**Quantum physics:** Quantum optics; Quantum computation

**Chemical physics:** Surface physics

**Biophysics :** genetic networks

## TEACHING EXPERIENCE

2016: Technion, lecturer in graduate course **Galactic Physics**  
2014,2015: Technion, lecturer in undergraduate course **physics 1M**  
2013: Special I-CORE graduate course in **binary stars and planets**, lecturer; co-organized and developed with Tsevi Mazeh from Tel-Aviv University  
2013-2017: Technion, lecturer in undergraduate course “**Astrophysics & Cosmology**”; developed the full flipped class approach for this course, first time ever used in physics and in general in the Technion  
2012-: Undergraduate “**research project**” course mentor of 10 students  
2012: Technion, lecturer graduate course “**Selected topics in astrophysics**”, lecturer (special focus on planet formation developed by me)  
2005-2009: Weizmann Institute of Science, TA in the graduate course **Astrophysics & Cosmology**  
2003-2004 Hebrew University in Jerusalem, Lab TA, undergraduate **Physics 2nd year lab**

## TECHNION ACTIVITIES

2012-2014: Board member, Technion high performance computation (HPC, Tamnun) committee  
2012-2014: Member, Technion computation and communication committee  
2012-2014: Initiator and co-organizer of the Technion international postdoc initiative (established the international postdoc office, special website, postdoc activities etc.)  
2013-2014: Chair, Technion young-PIs forum

## DEPARTMENTAL ACTIVITIES

2013-: Chair, Physics honors program  
2013: Board member, Physics honors program  
2013-2014: Board member and Technion representative, Israel physical society  
2012-2014: Member, Physics international-students committee  
2012-2014: Astrophysics seminar organizer

## PUBLIC PROFESSIONAL ACTIVITIES

1. Journal referee for the following journals: **Nature, Science, Nature Astronomy, The Astrophysical Journal (ApJ), ApJ Letters, ApJ Supplements, The Astronomical Journal, Astronomy & Astrophysics, Monthly Notices of the Royal Astronomy Society (and Letters), PASP, Classical and Quantum Gravity, Scientific Reports, Computational Astrophysics and Cosmology, New Astronomy, Advances in Space Science, European journal of physics, The Open Astronomy Journal**
2. Referee for NASA Postdoctoral Prize (NPP) fellowships, 2016
3. Referee for NASA grants “Solar System Workings Program”, 2014
4. Referee for Israel ministry of science, technology and space grant proposal, 2014
5. Board member, Israel physical society, 2013-2014
6. Referee for **NASA grants “Origins program – theory of planet formation”**, 2013
7. **IPS conference**, Hebrew University in Jerusalem, Astrophysics session chair and organizer
8. Initiator and co-founder of “**The MINERVA center for life under extreme planetary conditions**”, 2012
9. Advisory board member, Lifeboat foundation, 2012-
10. Member, **NASA “Origins program”** theory panel review , 2011
11. Member, ITC post-doc hiring committee (**Harvard-Smithsonian CfA**), 2011
12. Member, ITC visitors and colloquium committee (**Harvard-Smithsonian CfA**), 2010-2012
13. Co-organizer, ITC Planet formation seminar series (**Harvard-Smithsonian CfA**), Spring 2009

14. Co-organizer, ITC Supernovae seminar series (**Harvard-Smithsonian CfA**), Fall 2010
15. Co-organizer, ITC Galaxy structure and evolution seminar series, (**Harvard-Smithsonian CfA**), Spring 2011
16. Member, **Harvard-Smithsonian CfA** postdocs committee, 2010
17. Astrophysics journal club organizer, Weizmann Institute of Science, 2005-2006

### **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

European Astrophysical Society (EAS)  
 Israel physics society (IPS)  
 International Astronomical Union (IAU)  
 Kavli frontiers for young PIs  
 I-CORE “From big bang to planets” member  
 Minerva center for life under extreme planetary conditions, co-founder and member

### **FELLOWSHIPS, AWARDS AND HONORS**

1. **Kavli fellow 2013 (US-Israel national academies of science, Kavli frontiers of Science program)**
2. **Deloro Career Advancement Chair 2012-2014** (Technion - Israel Institute of Technology)
3. **Harvard-Smithsonian CfA Prize Fellowship, 2010-2012** (Harvard University, Smithsonian astrophysical observatory)
4. **Rothschild Prize Fellow, 2009-2010** (Rothschild Yad-Hanadiv Foundation)
5. **Fulbright Prize Fellow, 2009-2010** (United States-Israel Educational Foundation)
6. **The Ilan-Ramon prize fellowship, 2009-2010** (added to Fulbright fellowship as a special award by the Israeli Commercial and Industrial Club)
7. **FIRST (BIKURA) Fellow, (2009-2013)** (Israel Science Foundation)
8. **International Dan-David Scholar Prize, 2009** (Tel-Aviv University)
9. **Offered the following prize fellowships (2009): Caltech prize fellowship, TAC Berkeley fellowship, ITC Harvard prize fellowship, CITA fellowship** (all declined)
10. The Israeli Commercial and Industrial Club award for outstanding achievements, 2007
11. **Racah award for excellence in research, 2004** (Racah institute of physics, Hebrew university in Jerusalem)
12. **Amirim Scholarship for outstanding students, 2001-2004** (Hebrew University in Jerusalem)
13. **BA graduations, Magna cum laude, 2001** (Open University of Israel)
14. **Dean list and prize scholarships, 1993, 1994, 2000** (Open University of Israel)
15. Outstanding Officer 2000, (IDF)
16. **Mathematical Research Excellence awards** (IDF)
17. Special awards for best research projects, 2000, 2001

### **GRADUATE STUDENTS AND POSTDOCS**

#### **Postdocs**

1. Alessandra Mastrobuono-Battisti, 2012-2015 (now a prize postdoc fellow in Max Planck Institute in Heidelberg)
2. Curtis Saxton, 2015-2016 (working in the UK)
3. Oded Papish, 2016 (now working in the industry)
4. Uri Malamud, 2015-
5. Serena Repetto, 2016-
6. Diego Munoz, 2016-2017 (now a prize postdoc fellow at Northwestern university)
7. Silvia Toonen, 2016 (now a VENI prize fellow in Amsterdam)

## Completed Theses

### PhDs

1. **Adrian S. Hamers (PhD)**, 2013-2016, “Hierarchical systems”; supervisors **Simon Portegies-Zwart (Leiden University; supervisor) and Hagai Perets (co-supervisor)**. Now a prize postdoc fellow in the institute of advanced studies in Princeton, USA.
2. **Danor Aharon (PhD)**, 2012-2016, “Stellar dynamics near massive black holes in nuclear stellar clusters”, **supervisor Hagai Perets**; Now works in a start-up company.
3. **Erez Michaely (PhD)**, 2012-2017, “Triple evolution and dynamics of stellar and planetary systems”, **supervisor Hagai Perets. Now a postdoc in the Technion.**

### MScs

1. **Matias Rotenberg (MSc)**, 2012-2015, “Planet-planet scattering and the dynamical evolution of planetary systems”; **supervisor Hagai Perets**  
Now working in Industry (programmer in Facebook, Israel)
2. **Evgeni Grishin (Msc)**, 2013-2015, “The role of gas dynamical friction in planet formation”  
Now a PhD student in my group.
3. **Roi Rahin (Msc)**, 2013-2015, “Origin of regular and irregular moons of gas-giants”  
CTO of Q Information Technologies, Israel

### Special programs

1. Fabio Antonini (currently a prize postdoc fellow in Northwestern university) ; PhD project; the Harvard-ITC pre-doc program, “Dynamical evolution of binaries near massive black holes” (see publications 33 and 50)

### **Theses in Progress**

#### Full Msc and PhD students

1. Yossef Zinnati (PhD), 2015-2019 (expected), “Mechanism for thermonuclear supernovae”
2. Evgeni Grishin (PhD), 2016-2019 (expected), “Stellar and planetary dynamics of few-body systems”
3. Avi Blasberger (PhD), 2015-2018 (expected), “Observational properties of PAH molecules in space”, Co-supervised with Ehud Behar
4. Hila Glanz (Msc), 2016-2017 (expected), “Common envelope evolution of triple systems”
5. Diego Mikhallof, 2016-2017 (expected), “Evolution of stellar and planetesimals disks around central massive objects”

## RESEARCH GRANTS

### Grant money awarded

1. **2014, Lower-Saxony (Niedersachsen)– Israel bi-national grants**, 300K Euro; PIs **Perets & Sonja Schuh** (U. of Göttingen, Germany)
2. **2014, Minerva** equipment grant, 40K Euro ; **PI Perets**
3. **2013, Marie Curie Career Integration Grant, FP7 program** ; 100K Euro ; **PI Perets**
4. **2013, Minerva** center for life under extreme physical conditions; 750K Euro  
PIs: Oded Aharonson (WIS), **Perets**, Itai Levi (WIS), Shai Kaspi (WIS) and Aharon Oren (HUJI)
5. **BIKURA (ISF)** fellowship; 80K \$ for 2 yrs (2009) + 24K \$ + 40K NS (salary grant) as PI at Technion (2012); **PI Perets**
6. **2013, BSF** grant; 148K \$ (2013-2017); PIs **Perets & Matthew Holman** (Senior astronomer in the Harvard-Smithsonian center for astrophysics).
7. **2013, I-CORE** (PI Piran; HUJI) young PI personal grant (180K NS x 5 yrs) + 180K one time equipment grant (2013); PI of **young investigator grant: Perets**

8. ERC grant, passed first stage in 2012 and again in 2016 and invited for interview

**Granted computation time on high performance computers (HPC) competitive grants**

2014: 200,000 CPU hours through the Linkskeem program, PI **Perets**

2014: 12,000 GPU hours through the Linkskeem program, PI **Perets**

**Granted observation time:**

2013: Gemini telescope, small observing program, PIs Brown (Caltech) and **Perets**

2010, 2011, 2012: Total of 12 observing nights, FLWO CfA Telescope in Arizona, **PI Perets**

2009 : ESO Very Large Telescope, Large program, as Co-I, **PI** Genzel (Max-Planck, Germany)

**PUBLICATIONS**

**Theses**

**MSc thesis:** “Formation of molecular hydrogen on interstellar dust”, 2004; supervisor Ofer Biham, Hebrew University in Jerusalem

**PhD thesis:** “Dynamics near central massive objects”, 2009; supervisor Tal Alexander, Weizmann Institute of Science

## Refereed papers in professional journals

Underlined are my students/post-docs.

1. Lipshtat A., **Perets H. B.**, Balaban N. Q., Biham O., Modeling of negative autoregulated genetic networks in single cells, *Gene*, 347, 265, 2005
2. **Perets H.B.**, Biham O., Manic{o} G., Pirronello V., Roser J., Swords S., Vidali G. Molecular Hydrogen Formation on Ice Under Interstellar Conditions, *The Astrophysical Journal*, 627, 850, 2005
3. **Perets H.B.**, Biham O. Molecular hydrogen formation on porous dust grains, *Monthly Notices of the Royal Astronomical Society*, 365, 801, 2006
4. Vidali G., Pirronello V., Li L., Roser J., Manico G., Mehl R., Lederhendler A., **Perets H.B.**, Brucato J.R., Biham O. Molecular Hydrogen Formation on Low Temperature Surfaces in Temperature Programmed Desorption Experiments, *Journal of Physical Chemistry A*, 111, 12611, 2007
5. **Perets H.B.**, Hopman C., Alexander T. Massive Perturber-driven Interactions between Stars and a Massive Black Hole, *The Astrophysical Journal*, 656, 709, 2007
6. **Perets H.B.**, Lederhendler A., Biham O., Vidali G., Li L., Swords S., Congiu E., Roser J., Manic{o} G., Brucato J.R., Pirronello V. Molecular Hydrogen Formation on Amorphous Silicates under Interstellar Conditions, *The Astrophysical Journal*, 661, L163, 2007
7. **Perets H.B.**, Alexander T. Massive Perturbers and the Efficient Merger of Binary Massive Black Holes, *The Astrophysical Journal*, 677, 146, 2008
8. **Perets H. B.**, Lahini Y., Pozzi F., Sorel M., Morandotti R., Silberberg Y., Realization of Quantum Walks with Negligible Decoherence in Waveguide Lattices, *Physical Review Letters*, 100, 170506, 2008
9. Wu X., Famaey B., Gentile G., **Perets H.**, Zhao H. Milky Way potentials in cold dark matter and M**O**dified Newtonian Dynamics. Is the Large Magellanic Cloud on a bound orbit?, *Monthly Notices of the Royal Astronomical Society*, 386, 2199, 2008
10. **Perets H.B.** Dynamical and Evolutionary Constraints on the Nature and Origin of Hypervelocity Stars, *The Astrophysical Journal*, 690, 795, 2009
11. Amir A., Lahini Y., **Perets H. B.**, Classical diffusion of a quantum particle in a noisy environment, *Physical Review E*, 79, 050105, 2009
12. **Perets H.B.**, Fabrycky D.C. On the Triple Origin of Blue Stragglers, *The Astrophysical Journal*, 697, 1048, 2009

13. Bartko H., Martins F., Fritz T.K., Genzel R., Levin Y., **Perets H.B.**, Paumard T., Nayakshin S., Gerhard O., Alexander T., Dodds-Eden K., Eisenhauer F., Gillessen S., Mascetti L., Ott T., Perrin G., Pfuhl O., Reid M.J., Rouan D., Sternberg A., Trippe S. Evidence for Warped Disks of Young Stars in the Galactic Center, *The Astrophysical Journal*, 697, 1741, 2009
14. **Perets H.B.**, Wu X., Zhao H.S., Famaey B., Gentile G., Alexander T. The Galactic Potential and the Asymmetric Distribution of Hypervelocity Stars, *The Astrophysical Journal*, 697, 2096, 2009
15. **Perets H.B.** Runaway and Hypervelocity Stars in the Galactic Halo: Binary Rejuvenation and Triple Disruption, *The Astrophysical Journal*, 698, 1330, 2009
16. **Perets H.B.**, Naoz S. Kozai Cycles, Tidal Friction, and the Dynamical Evolution of Binary Minor Planets, *The Astrophysical Journal*, 699, L17, 2009
17. **Perets H.B.**, Gualandris A., Kupi G., Merritt D., Alexander T. Dynamical Evolution of the Young Stars in the Galactic Center: N-body Simulations of the S-Stars, *The Astrophysical Journal*, 702, 884, 2009
18. Li L., Zhao H., Vidali G., Frank Y., Lohmar I., **Perets H. B.**, Biham O., Interaction of Atomic and Molecular Hydrogen with Tholin Surfaces at Low Temperatures, *Journal of Physical Chemistry A*, 114, 10575, 2010
19. Bartko H., Martins F., Trippe S., Fritz T.K., Genzel R., Ott T., Eisenhauer F., Gillessen S., Paumard T., Alexander T., Dodds-Eden K., Gerhard O., Levin Y., Mascetti L., Nayakshin S., **Perets H.B.**, Perrin G., Pfuhl O., Reid M.J., Rouan D., Zilka M., Sternberg A. An Extremely Top-Heavy Initial Mass Function in the Galactic Center Stellar Disks, *The Astrophysical Journal*, 708, 834, 2010
20. **Perets H.B.**, Gal-Yam A., Mazzali P.A., Arnett D., Kagan D., Filippenko A.V., Li W., Arcavi I., Cenko S.B., Fox D.B., Leonard D.C., Moon D.-S., Sand D.J., Soderberg A.M., Anderson J.P., James P.A., Foley R.J., Ganeshalingam M., Ofek E.O., Bildsten L., Nelemans G., Shen K.J., Weinberg N.N., Metzger B.D., Piro A.L., Quataert E., Kiewe M., Poznanski D. A faint type of supernova from a white dwarf with a helium-rich companion, **Nature**, 465, 322, 2010
21. **Perets H.B.**, Gualandris A. Dynamical Constraints on the Origin of the Young B-stars in the Galactic Center, *The Astrophysical Journal*, 719, 220, 2010
22. Naoz S., **Perets H.B.**, Ragozzine D. The Observed Orbital Properties of Binary Minor Planets, *The Astrophysical Journal*, 719, 1775, 2010
23. **Perets H.B.** Binary Planetesimals and Their Role in Planet Formation, *The Astrophysical Journal*, 727, LL3, 2011

24. **Perets H.B.**, Gal-yam A., Crockett R.M., Anderson J.P., James P.A., Sullivan M., Neill J.D., Leonard D.C. The Old Environment of the Faint Calcium-rich Supernova SN 2005cz, *The Astrophysical Journal*, 728, LL36, 2011
25. **Perets H.B.**, Badenes C., Arcavi I., Simon J.D., Gal-yam A. An Emerging Class of Bright, Fast-evolving Supernovae with Low-mass Ejecta, *The Astrophysical Journal*, 730, 89, 2011
26. **Perets H.B.**, Murray-Clay R.A. Wind-shearing in Gaseous Protoplanetary Disks and the Evolution of Binary Planetesimals, *The Astrophysical Journal*, 733, 56, 2011
27. Waldman R., Sauer D., Livne E., **Perets H.**, Glasner A., Mazzali P., Truran J.W., Gal-Yam A. Helium Shell Detonations on Low-mass White Dwarfs as a Possible Explanation for SN 2005E, *The Astrophysical Journal*, 738, 21, 2011
28. McKernan B., Ford K.E.S., Lyra W., **Perets H.B.**, Winter L.M., Yaqoob T. On rapid migration and accretion within discs around supermassive black holes, *Monthly Notices of the Royal Astronomical Society*, 417, L103, 2011
29. **Perets H.B.**, Kouwenhoven M.B.N. On the Origin of Planets at Very Wide Orbits from the Recapture of Free Floating Planets, *The Astrophysical Journal*, 750, 83, 2012
30. **Perets H.B.**, Subr L. The Properties of Dynamically Ejected Runaway and Hyper-runaway Stars, *The Astrophysical Journal*, 751, 133, 2012
31. Kratter K.M., **Perets H.B.** Star Hoppers: Planet Instability and Capture in Evolving Binary Systems, *The Astrophysical Journal*, 753, 91, 2012
32. Kasliwal M.M., Kulkarni S.R., Gal-Yam A., Nugent P.E., Sullivan M., Bildsten L., Yaron O., **Perets H.B.**, Arcavi I., Ben-Ami S., Bhalerao V.B., Bloom J.S., Cenko S.B., Filippenko A.V., Frail D.A., Ganeshalingam M., Horesh A., Howell D.A., Law N.M., Leonard D.C., Li W., Ofek E.O., Polishook D., Poznanski D., Quimby R.M., Silverman J.M., Sternberg A., Xu D. Calcium-rich Gap Transients in the Remote Outskirts of Galaxies, *The Astrophysical Journal*, 755, 161, 2012
33. Antonini F., **Perets H.B.** Secular Evolution of Compact Binaries near Massive Black Holes: Gravitational Wave Sources and Other Exotica, *The Astrophysical Journal*, 757, 27, 2012
34. McKernan B., Ford K.E.S., Lyra W., **Perets H.B.** Intermediate mass black holes in AGN discs - I. Production and growth, *Monthly Notices of the Royal Astronomical Society*, 425, 460, 2012



35. **Perets H.B.**, Kratter K.M. The Triple Evolution Dynamical Instability: Stellar Collisions in the Field and the Formation of Exotic Binaries, *The Astrophysical Journal*, 760, 99, 2012
36. Jordan G.C., IV, **Perets H.B.**, Fisher R.T., van Rossum D.R. Failed-detonation Supernovae: Subluminous Low-velocity Ia Supernovae and their Kicked Remnant White Dwarfs with Iron-rich Cores, *The Astrophysical Journal*, 761, LL23, 2012
37. Gualandris A., Mapelli M., **Perets H.B.** Eccentric disc instability in stellar discs formed from inspiralling gas clouds in the Galactic Centre, *Monthly Notices of the Royal Astronomical Society*, 427, 1793, 2012
38. Leigh N., Knigge C., Sills A., **Perets H.B.**, Sarajedini A., Glebbeek E. The origins of blue stragglers and binarity in globular clusters, *Monthly Notices of the Royal Astronomical Society*, 428, 897, 2013
39. **Perets H.B.**, Kenyon S.J. Wind-accretion Disks in Wide Binaries, Second-generation Protoplanetary Disks, and Accretion onto White Dwarfs, *The Astrophysical Journal*, 764, 169, 2013
40. Leigh N.W.C., Boker T., Maccarone T.J., **Perets H.B.** Gas depletion in primordial globular clusters due to accretion on to stellar-mass black holes, *Monthly Notices of the Royal Astronomical Society*, 429, 2997, 2013
41. Drout M.R., Soderberg A.M., Mazzali P.A., Parrent J.T., Margutti R., Milisavljevic D., Sanders N.E., Chornock R., Foley R.J., Kirshner R.P., Filippenko A.V., Li W., Brown P.J., Cenko S.B., Chakraborti S., Challis P., Friedman A., Ganeshalingam M., Hicken M., Jensen C., Modjaz M., **Perets H.B.**, Silverman J.M., Wong D.S. The Fast and Furious Decay of the Peculiar Type Ic Supernova 2005ek, *The Astrophysical Journal*, 774, 58, 2013
42. Lyman J.D., James P.A., **Perets H.B.**, Anderson J.P., Gal-Yam A., Mazzali P., Percival S.M. Environment-derived constraints on the progenitors of low-luminosity Type I supernovae, *Monthly Notices of the Royal Astronomical Society*, 434, 527, 2013
43. Payne M.J., Deck K.M., Holman M.J., **Perets H.B.** Stability of Satellites in Closely Packed Planetary Systems, *The Astrophysical Journal*, 775, LL44, 2013
44. Mastrobuono-Battisti A., **Perets H.B.** Evolution of Second-generation Stars in Stellar Disks of Globular and Nuclear Clusters:  $\omega$  Centauri as a Test Case, *The Astrophysical Journal*, 779, 85, 2013

45. Madigan A.-M., Pfuhl O., Levin Y., Gillessen S., Genzel R., **Perets H.B.** On the Origin of the B-stars in the Galactic Center, *The Astrophysical Journal*, 784, 23, 2014
46. **Perets H.B.**, Mastrobuono-Battisti A. Age and Mass Segregation of Multiple Stellar Populations in Galactic Nuclei and their Observational Signatures, *The Astrophysical Journal*, 784, LL44, 2014
47. Leigh N.W.C., Mastrobuono-Battisti A., **Perets H.B.**, Boker T. Stellar dynamics in gas: the role of gas damping, *Monthly Notices of the Royal Astronomical Society*, 441, 919, 2014
48. Michaely E., **Perets H.B.** Secular Dynamics in Hierarchical Three-body Systems with Mass Loss and Mass Transfer, *The Astrophysical Journal*, 794, 122, 2014
49. Mastrobuono-Battisti A., **Perets H.B.**, Loeb A. Effects of Intermediate Mass Black Holes on Nuclear Star Clusters, *The Astrophysical Journal*, 796, 40, 2014
50. Prodan S., Antonini F., **Perets H. B.**, Secular Evolution Of Binaries Near Massive Black Holes: Formation of compact binaries, merger/collision products and G2-like objects, *The astrophysical Journal*, in press, 2014 (see arXiv:1405.6029)
51. Aharon D., **Perets H. B.**, Formation and evolution of nuclear star clusters with in-situ star-formation: Nuclear cores and age segregation, *The astrophysical Journal*, in press, 2015 (see arXiv:1409.5121)
52. Mazeh T., **Perets H. B.**, McQuillan A. Photometric Amplitude Distribution of Stellar Rotation of Kepler KOIs — Indication for Spin-Orbit Alignment of Cool Stars, *The astrophysical Journal*, 2015
53. Hamers, A., **Perets, H. B.**, Antonini F., Portugies-Zwart, S., “Secular dynamics of hierarchical quadruple systems: the case of a triple system orbited by a fourth body”, *Monthly Notices of the Royal Astronomy Society*, 449, 42221, 2015
54. Mastrobuono-Battisti, A. , **Perets H. B.** & Raymond S. The origin of the composition similarity of the Earth-Moon system, **Nature**, april 2015
55. Grishin, E.; **Perets, H. B.**, Application of Gas Dynamical Friction for Planetesimals. I. Evolution of Single Planetesimals, *The Astrophysical Journal*, 811, 54, 2016
56. Hamers, A. S.; **Perets, H. B.**; Portegies Zwart, S. F., A triple origin for the lack of tight coplanar circumbinary planets around short-period binaries, *Monthly Notices of the Royal Astronomy Society*, 455, 3180, 2016
57. Grishin, E.; **Perets, H. B.**, Application of Gas Dynamical Friction for Planetesimals.II. Evolution of Binary Planetesimals, *The Astrophysical Journal*, 820, 106, 2016

58. Papish, O.; **Perets, H. B.**, Supernovae from Direct Collisions of White Dwarfs and the Role of Helium Shell Ignition, *The Astrophysical Journal*, 822, 19, 2016
59. Mastrobuono-Battisti, A.; **Perets, H. B.**, Second-generation Stellar Disks in Dense Star Clusters and Cluster Ellipticities, *The Astrophysical Journal*, 823, 16, 2016
60. **Perets, H. B.**; Li, Zhuo; Lombardi, James C., Jr.; Milcarek, Stephen R., Jr., Micro-tidal Disruption Events by Stellar Compact Objects and the Production of Ultra-long GRBs, *The Astrophysical Journal*, 823, 113, 2016
61. Aharon, D.; Mastrobuono Battisti, A.; **Perets, H. B.**, The History of Tidal Disruption Events in Galactic Nuclei, *The Astrophysical Journal*, 823, 137, 2016
62. Michaely, E.; **Perets, H. B.**, Tidal capture formation of low-mass X-ray binaries from wide binaries in the field, *Monthly Notices of the Royal Astronomy Society*, 458, 4188, 2016
63. Aharon, D.; **Perets, H. B.**, The impact of mass segregation and star-formation on the rates of gravitational-wave sources from extreme mass ratio inspirals, *The Astrophysical Journal Letters*, 830, L1, 2016
64. Hamers, A. S.; Antonini, F.; Lithwick, Y.; **Perets, H. B.**; Portegies Zwart, S. F., Secular dynamics of multiplanet systems: implications for the formation of hot and warm Jupiters via high-eccentricity migration, *Monthly Notices of the Royal Astronomy Society*, 464, 688, 2017
65. Tsatsi, Mastrobuono-Battisti, van de Ven, **Perets**, Bianchini, Neumayer, On the rotation of nuclear clusters formed by cluster-inspirals, *Monthly Notices of the Royal Astronomy Society*, 464, 372, 2017
66. Mikhaloff, D. N.; **Perets, H. B.**, Short and long term evolution of a stellar disk around a massive black hole: The role of binaries, the cusp and stellar evolution, *Monthly Notices of the Royal Astronomy Society*, 465, 281, 2017
67. Michaely, E.; **Perets, H. B.**; Grishin, E., On the existence of regular and irregular outer moons orbiting the Pluto-Charon system, *The Astrophysical Journal*, 836, 27, 2017
68. Grishin, E., **Perets, H. B.**, Zenati, Y. and Michaely, E., Generalized Hill-Stability Criteria for Hierarchical Three-Body Systems at Arbitrary Inclination, *Monthly Notices of the Royal Astronomy Society*, 466, 246, 2017
69. Rufo, R., Aaronson, O. & **Perets, H. B.**, A Multiple Impact Hypothesis for Moon Formation, *Nature Geoscience*, 10, 89, 2017

70. Blasberger, A., Behar, E., Brosch, N., **Perets, H. B.** & Tielens, A. G. G. N, Evidence Linking Interstellar UV Absorption to PAH Molecules, *The Astrophysical Journal*, 836, 173, **2017**
71. Malamud, U.; **Perets, H. B.**; Schubert, Gerald, The Contraction/Expansion History of Charon with implication for its Planetary Scale Tectonic Belt, *Monthly Notices of the Royal Astronomy Society*, 468, 1056, **2017**
72. Mastrobuono-Battisti, A. & **Perets, H. B.** , The composition of Solar system asteroids and Earth/Mars moons, and the Earth-Moon composition similarity, *MNRAS*, in press
73. Malamud, U.; **Perets, H. B.**, Post main sequence evolution of icy minor planets II: water retention and white dwarf pollution around massive progenitor stars, arXiv:1704.01165, *The Astrophysical Journal*, in press, **2017**

#### **Submitted papers under review**

74. Michaely, E., Ginzburg, D. & **Perets, H. B.**, Neutron star natal kicks: Collisions,  $\mu$ TDEs, faint SNe, GRBs and GW sources with preceding electromagnetic counterparts, arXiv:1610.00593
75. Saxton, C., **Perets, H. B.** & Baskin, A., Spectral features of tidal-disruption candidates and alternative origins for such transient flares, arXiv:1612.08093
76. Hamers, Adrian S. & **Perets, H. B.**, Tidal disruptions by supermassive black holes driven by nuclear spiral arms: anisotropic hypervelocity stars, S-stars and TDEs, arXiv:1704.0625

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## CONFERENCES AND COLLOQUIA

In astrophysics the corresponding type of conference talks we have are regular, invited and invited reviews

<b>Year</b>	<b>Talks</b>	<b>Conference/Place</b>
2017	3 invited talks	<ol style="list-style-type: none"> <li>1. Galactic Center, Ringberg, Germany</li> <li>2. Gravitational wave source and electromagnetic counterparts, Leiden, The Netherlands</li> <li>3. Tidal disruption events, Cambridge, UK</li> </ol>
2016	<p>1 invited review 1 Invited review talk in an international school</p> <p>2 invited talks</p> <p>1 conference talk</p>	<ol style="list-style-type: none"> <li>1. Stars on the Run, Bamberg, Germany</li> <li>2. Planet formation, Bad-Honnef, Germany</li> <li>3. Galactic center, Aspen, USA</li> <li>4. MODEST-17 dense clusters, NYC, USA</li> <li>5. Binaries in Cambridge, Cambridge, UK</li> </ol>
2015	<p>1 Invited review talk in international school</p> <p>4 invited conference talks</p> <p>3 conference talks</p> <p>2 Colloquium</p>	<ol style="list-style-type: none"> <li>1. Planet formation international school, Jerusalem, Israel</li> <li>2. Massive binaries, Leiden, Netherlands</li> <li>3. Pathways to exomoons, Bern, Switzerland</li> <li>4. ILASOL conference, Ben-Gurion University, Beer-Sheva, Israel</li> <li>5. Triple evolution and Dynamics, Haifa, Israel</li> <li>6. Pathways to exomoons, Bern, Switzerland</li> <li>7. Binaries in Lund, Sweden</li> <li>8. Tidal disruption events, Jerusalem, Israel</li> <li>9. Physics department, Technion</li> <li>10. Physics department, Ben-Gurion University</li> </ol>
2014	<p>1 invited review conference talk</p> <p>6 invited conference talks</p> <p>1 regular conference talk</p>	<ol style="list-style-type: none"> <li>1. Massive black holes and nuclear clusters, Cefalu, Italy; "Formation and evolution of nuclear stellar clusters"</li> <li>2. Binary systems, Ulan-Battar, Mongolia (declined due to family issues); "Triple evolution and dynamics"</li> <li>3-4. Gravitational dynamics, ISIMA conference, Toronto, Canada</li> <li>Two talks: "The origin of irregular satellites", "Dynamics of triple systems" ; 4. "Dynamics of triple systems"</li> <li>5. Unsolved mysteries in transient phenomena, Eilat, Israel; "Irregular supernovae and the origin of the Galactic 511 keV emission"</li> <li>6. Science education at the 21st century, Technion, Israel; "The flipped class in interstellar space"</li> <li>6. Stellar tango, Banff, Canada; "The role of triples in binary evolution"</li> </ol>

	3 Colloquia	7. Physics department, Ben-Gurion University; “The origins of the Moons” 8-9. Physics department, Bar-Ilan University; also Physics department, Technion; “Paradigms lost: Supernovae and the origins of the element”
2013	1 invited review conference talk  2 invited conference talks  1 Colloquium	1. Kavli frontiers of Science, American National academy of Science, Irvine, California US; “Cosmic explosions”  2. Kavli workshop on Black holes; KITP, Santa Barbara, “Dynamics of stars near massive black holes” 3. “Multi-messenger search of high energy astrophysical sources” Akko, Israel; “Irregular supernovae, their progenitors and implications”  4. Planetary science department, Tel-Aviv University, “The origins of the Moons”
2012	1 invited review conference talk  1 invited conference talk  1 Colloquium	1. Blue stragglers, Santiago, Chile, “Formation channels of blue stragglers:Theory vs. observations”  2. Binary and Planetary systems, Tel-Aviv, Israel, “Planets in evolved binary systems”  3. Catolica University (Santiago, Chile), “Triple evolution and dynamics in stellar and planetary systems”
2011	3 regular conference talks   4 Colloquium	1. Evolution of compact binaries, Vina Del-Mar, Chile; “Formation of compact binaries in triple systems” 2. AAS Boston, USA; “Wind shearing and the evolution of binary planetesimals” 3. Extreme Solar Systems II, Yellowstone, USA; “Second generation stars and planets in evolved binary systems”  4. UCLA (USA); 5. Brown (USA), 6. Catolica University (Chile), MIT (USA,, 7. Florida University (USA); “The stars that should not be there”
2010	1 Invited review conference talk  1 Invited conference talk  1 regular conference talks 2 Colloquium	1. Extra-solar planets beyond the main sequence conference, Bamberg, Germany; “Planets in evolved binary systems”  2. Dynamics from the Galactic Center to the Milky Way Halo, CfA Harvard, Boston MA, USA; “Dynamics of stars near massive black holes and hypervelocity stars”  3. AAS DDA meeting, Boston, USA; “Second generation stars”  Tel-Aviv University (geophysics & planetary science); “Planet in evolved binary systems” Northwestern University, Chicago; The stars that should not be there”
2009	2 Invited Conference talks	1. Galactic Center Workshop: A Window to the Nuclear Environment of Disk Galaxies, Shanghai,China; “Dynamical evolution of the young stars in the Galactic Center”

	2 regular conference talks	<p>2. Fireworks workshop, Bonn, Germany; “A new type of supernova explosions”</p> <p>3. Stellar mergers workshop, Leiden, Netherlands; “The triple origin of blue stragglers”</p> <p>4. American Astronomical Society, DDA meeting, Virginia Beach, USA; “Kozai cycles, tidal friction and the evolution of binary planetesimals”</p>
2008	4 regular conference talks	<p>1. The central Kiloparsec conference, Ierapetra, Crete ;Dynamical evolution of the young stellar disk in the Galactic Center”</p> <p>2. Fireworks, Weizmann Institute of Science; “A new type of supernova explosions”</p> <p>3. Nuclear Star Clusters across the Hubble Sequence conference, Heidleberg, Germany; “Young stars in the Galactic center”</p> <p>4. Galactic nuclei workshop, Hebre3w University in Jerusalem; “Massive perturbers and the last parsec problem”</p>
2007	1 Invited conference talk  2 regular conference talks	<p>1. Galactic center workshop, Ringberg, Germany; Dynamics and evolution of the S-stars in the Galact Center”</p> <p>2. N-body dynamics in near-Keplerian potentials workshop, Leiden, Netherlands; “Binary disruptions and the dynamical evolution of stars near massive black hole”</p> <p>3. IPS, Rehovot, Israel; “Binary disruptions and the dynamical evolution of stars near massive black hole”</p>
2006	1 regular conference talk	1. Galactic Center Workshop, Badhonnef, Germany; Massive perturbers and the origin of the S-stars in the Galact Center”
2005	1 regular conference talk	IPS Carmiel, “Massive perturbers and the origin of the S-stars in the Galact Center”

### **Participation in organizing conferences**

1. “Planetary systems beyond the main-sequence II”, Technion, Israel, 2017, **Chair**
2. “National astrophysics workshop for undergraduate students”, Mizpe-Ramon, Israel, 2016, **Chair**
3. “Triple evolution and dynamics in stellar and planetary systems”, Technion Israel, 2015, **Chair**
4. “Workshop in honor of Reinhard Genzel Harvey prize award: Galaxy evolution and the Galactic center”, **chair**
5. “Transients unsolved mysteries”, Eilat 2014, member of scientific organizing committee
6. Kavli Frontiers, Jerusalem, 2014, Co-organizer of Israel National Academy of science Frontiers conference for young scientists
7. Israel physical society conference, Jerusalem, 2012, 2015, Astrophysics session organizer and **chair**
8. “Blue Stragglers” conference, Via del Mar Chile, 2012, member of scientific organizing committee
9. Harvard-Smithsonian CfA post-doc symposium, CfA, 2010, member of organizing committee
10. The Israeli astrophysics and cosmology students conference series (AsCoS): AsCoS I (2008, Weizmann Institute), AsCoS II (2009, Tel-Aviv university), co-founder and **chair**



## **Voluntary, Outreach & Educational Activity**

### **Public science teaching and outreach:**

2016 Public lecture to teachers seminary, Haifa University (Oranim campus)

2014, 2015, 2016 Public lectures:

- Leo Baeck high school science day

2013 Public lectures:

- Tel-Aviv Astronomy club (Tel-Aviv university)

- International science night (in Technion, Haifa)

- Public lecture for Technion employees

2011 Mentoring in the MIT Research Science Institute (2011)

2010 Mentor in the Smithsonian astrophysical observatory REU summer program for outstanding undergraduate students

2010 Supervisor in Harvard "PRISE" summer program for outstanding undergraduate students

2010 Mentoring of high-school student project

2010 Presentation of Astrophysics for kindergarten children (in the "Little Children Schoolhouse", Brookline MA)

2006-2009 "Youth in Science", Weizmann Institute

– Physics lecturer for talented youth.

– Short term physics projects instructor for outstanding young students

– Long term physics project supervisor for outstanding young student (the project won the first prize in the Israeli youth in science national competition).

2003-2004 School for Arts and Science, Jerusalem (ASA)

Physics project instructor for talented youth

2000-2001 "Yahdav" Organization (voluntary educational help by soldiers)

Low socio-economical level students Math tutor.

### **Other educational and voluntary activities:**

2004-2005 "Amutat Reut" and "Meoravut Hevratit" organizations

Co-founder of the education Center for low socio-economical level high school students

2004-2005 MA'AGAL Volunteers Center in Gilo Neighborhood in Jerusalem.

Founder and head of the volunteer center in Gilo neighborhood

2003-2004 "Social Involvement ('Meoravut Hevratit') Organization

Personal guide and tutor for delinquent youth

2002-2003 "Beit Hilel", Hebrew University - Students bi-cultural meetings

Arab-Jewish students meetings and discussions