Jacques LASKAR **5 février 2020**

Astronomie et Systèmes Dynamiques,
IMCCE, CNRS-UMR8028,
Observatoire de Paris, PSL University, Sorbonne Universités,
77 av. Denfert-Rochereau F-75014 PARIS
TEL : (33) 1 40 51 21 14
email : Laskar@imcce.fr
web page : `http://laskar.astromath.fr`
publications : `http://scholar.google.fr/citations?user=ioDHJs0AAAAJ`

CV

Born April, 28, 1955 Paris 6ème
1974–1977 : Ecole Normale Supérieure de Cachan
1976 : Master in pure mathematics
1977–1980 : Teaching maths in high school
1981 : Agregation of mathematics (Univ. Paris VI)
1982 : Master in astronomy and celestial mechanics (Paris Observatory)
1984 : Thesis (Paris Observatory)
1985–1986 : Consultant at Jet Propulsion Laboratory (NASA, USA)
1985–2010 : Researcher and Director of Research CNRS, ASD, IMCCE-Observatoire de Paris
Since 2010 : Director of Research of highest class, CNRS, ASD, IMCCE-Observatoire de Paris

Current Responsabilities

Director of the IMCCE since may 2017.
Member of the Academy of Sciences (2003) and Bureau des Longitudes (2011).
Member of OC of IAU Commission 7 ; member of the Ed. Board of Celestial Mechanics (1999) and of the *Celestial Mechanics Institute* (2008). Founder and Head of the MesoPSL computer mesocenter at Paris Observatory and PSL since 2010 `http://www.mesopsl.fr`. Member of the SC of Labex ESEP since 2011 ; of the Scientific Council of PSL since 2011. PI of the ANR AstroMeso (2019).

Main past responsabilities :

Co-founder and Head of the Astronomy and Dynamical System group from 1992 to may 2017. Member of the Editorial Board of Nonlinearity (1993–1999) ; Member of the SC of IPGP (1998-2004) and of the Orientation council of Cergy-Pontoise University(2005-2009) ; President of the evaluation committees of Cassini and Galilée Laboratories (2007) ; PI of the ANR ATS-CM (2007-2011) ; Co-I of GTS-next (ITN, 2008-2012) ; Member of the AERES committees of AIM and IPGP (2008) ; Vice-President of IAU Division A (2012-15).

Distinctions

1993 : Pontécoulant Prize from Academy of Sciences
1993 : IBM Prize
1994 : Silver Medal from CNRS
1997 : Elected, Corresponding Member of the French Academy of Sciences
2003 : Elected, Member of the French Academy of Sciences
2007 : Brouwer Award (Division of Dynamical Astronomy, American Astronomical Society)
2011 : Elected, Member of the Bureau des Longitudes
2019 : Milutin Milankovic Award from EGU division "Climate : Past, Present & Future"

Most quoted publications. The 10 most quoted publications with J. Laskar as lead author (source ISI August 6, 2019). ISI counts 159 publications (11 120 citations, average citations 69.94, h-index 55). The citation numbers from Google Scholar are also given (17391 citations, h-index 62).

	ISI	Scholar
Laskar, J., Robutel, P., Joutel, F., et al., 2004, *A&A*, **428**, 261	1504	2096
Laskar, J., 1990, *Icarus*, **88**, 266	719	1137
Laskar, J., Correia, ACM., Gastineau, M., et al., 2004, *Icarus*, **170**, 343	511	703
Laskar, J., Joutel, F., Boudin, F., 1993, *A&A*, **270**, 522	378	563
Laskar, J., 1993, *Physica D*, **67**, 257	345	556
Laskar, J., Robutel, P., 1993, *Nature*, **361**, 608	304	505
Laskar, J., 1989, *Nature*, **338**, 237	273	462
Laskar, J., Fienga, A., Gastineau, M., Manche, H., 2011, *A&A*, **532**, A89	257	364
Laskar, J., Froeschlé, Cl., Celletti, A., 1992, *Physica D* , **56**, 253	244	449
Laskar, J., 1988, *A&A*, **198**, 341	221	301

J. Laskar has published more than 160 papers in international journals and has been an invited speaker in more than 190 scientific meetings and 160 seminars and colloquiums or summer schools. He has supervised 22 PhD theses.

Plenary invited conferences

— Dynamics Days, Poznan, Poland 10-13 june 1992
— XIth ICMP International conference in mathematical physics, Paris 18–23 june 1994,
— 3 rd ECM European Congress in Mathematics, Budapest, Hungary, 21–27 july 1996
— DPG (German Physical Society) Conference, Heidelberg, Germany, 17–20 march 1999
— TH2002, International Conference on Theoretical Physics Paris, UNESCO, 22-27 July 2002
— Enoc (5th Euromech Nonlinear Dynamics Conference), Eindhoven, Netherlands, 7-12 august 2005
— ICP12 (12th International Conference on Paleoceanography), Utrecht, Netherlands, 2016, August 29, September, 2, Perspective lecture.

Named conferences

— 3rd Shrödinger lecture, Erwin Schrödinger Institute for Mathematical Physics, Vienna, Austria, 2 April 1998
— Mutch Lecture, Brown University, Department of Geological Sciences, USA, 7 December 2000
— Bernoulli lecture, University of Groningen, Germany, 22 May 2001
— Goedel Lecture, Austrian Academy of Sciences, Vienna, Austria, 27 November 2002
— Brouwer Award Lecture, American Astronomical Society, DDA, Ann Arbor, USA, May 2007
— Heilborn Lecture, Northwestern Univ., 'Chaotic motion of the Solar System', USA, Jan. 2010
— Monna Lecture, Utrecht Univ., 'Stability and Chaos in the Solar System ', Netherlands, 14 feb. 2013
— Milutin Milankovitch Lecture, EGU2019, 'Astronomical solutions for paleoclimate studies. Historical views and new challenges', Vienna 10 April 2019

Teaching

— 1992–1993. Lecture on Dynamical Systems Ecole Polytechnique (2h)
— 1990–1995. Course at DEA Observatoire de Paris : Numerical methods for the study of chaos and stability in the Solar system (10h)
— 1996–2000 Course at DEA then M2 Observatoire de Paris : SOlar System Dynamics. Regular motions, chaotic motions (15h)
— 2000–2019. Teaching classes at M2 Observatoire de Paris : Study of a dynamical system (20 h)
— 2004–2005. M1 course at Observatoire de Paris : Rotational dynamics (15h)
— 2009–2014. M1 course at ENS Ulm : Dynamics of planetary systems (lectures 16h + TD 16 h)
— 2013–2018 M1 course at ENS Cachan : Hamiltonian dynamics (cours 20h)

PhD thesis

— Pierre-Vincent Koseleff : Application du calcul formel aux méthodes de Lie en mécanique hamiltonienne. Ecole Polytechnique (Mathématiques), 29 janvier 1993.(dir. M. Demazure / J. Laskar)
— Philippe Robutel : Contribution à l'étude de la stabilité du problème planétaire des 3 corps. Observatoire de Paris, 9 décembre 1993 (dir. J. Laskar)
— Olivier Néron de Surgy : Stabilité à long terme de l'obliquité des planètes. Effets dissipatifs. Observatoire de Paris, 3 mai 1996. (dir. J. Laskar)
— Yannis Papaphilippou. Application de la méthode d'analyse en fréquence en dynamique galactique. Paris VII, Meudon, 27 janvier 1997 (dir J. Laskar)
— Timoteo Carletti : "Méthodes directes en théorie des petits diviseurs" février 2000 à Florence (dir. S. Marmi/J. Laskar)
— Laurent Nadolski : "Application de l'analyse en fréquence à l'étude de la dynamique des accélérateurs" 6 juillet 2001 à Orsay (dir. J. Laskar)
— Alexandre Correia : "La rotation des planètes telluriques : origine et évolution à long terme", 16 novembre 2001 (dir. J. Laskar)
— Franck Malige : "Stabilité effective d'un système planétaire", 19 novembre 2001 (dir. J. Laskar/P. Robutel)
— Benjamin Levrard : "Sur certains aspects de la théorie astronomique des paléoclimats terrestres et martiens ", 23 juin 2003 (dir. J. Laskar)
— François Farago :" Aspects analytiques dans la dynamiques des systèmes planétaires extra solaires" 8 avril 2010
— Gwenaël Boué :" Evolution à long terme des spins des planètes" 9 avril 2010
— Petr Kuchynka : "pertiurbations à court et long terme des astéroïdes sur les mouvements planétaires", 3 décembre 2010
— Dorothée Husson :" Calibration astronomique des échelles de temps géologiques" (en co-dir. B. Galbrun, PVI) 8 décembre 2010
— Hervé Manche : "Intégrations numériques à court et long termes pour le mouvement du Système solaire " (en co-dir. A. Fienga, IMCCE), 12 janvier 2011.
— Jean-Baptiste Delisle, Outils analytiques et numériques pour la dynamique des systèmes planétaires extra-solaires en résonance ou non. 15 septembre 2014.
— Andy Richard, Librations en longitude de Titan : étude d'un modèle de satellite à trois couches élastiques. (co-dir. avec N. Rambaux) 22 octobre 2014
— Pierre Auclair-Desrotour, Etudes des effets de marées dans les planètes extra-solaires. (en co-dir Stéphane Mathis), Soutenue le 16 septembre 2016.
— Farida Baidolda : "Recherche de l'influence planétaire sur l'activité solaire " 22 septembre 2017
— Nathan Hara, Outils pour l'analyse de données de vitesses radiales, (co-dir avec Gwenael Boué), 27 octobre 2017.
— Vishnu Viswanathan : Improving the dynamical model of the Moon using lunar laser ranging

(LLR) and spacecraft data (co-dir avec A. Fienga) 10 novembre 2017
— Timothée Vaillant. Etude à long terme des mouvements orbital et du spin des planètes et satellites. 6 juillet 2018
— Antoine Petit, (co-dir with Gwenael Boué), Structure and stability of planetary systems, June 28, 2019

Current PhD

— Léo Bernus, Constraints on gravitational models in the solar system (co-dir with Agnès Fienga), defence forecasted on December 2019
— Guy Bertrand, Study of Le Verrier manuscipts for the discovery of Neptune. defence forecasted on 2020
— Nam Hoáng Hoái, Geological constraint on astronomical solutions, defence forecasted on 2022

Post docs

— 2006–2008 : Haris Skokos, Marie Curie Fellowship, *Beam Stability in Modern Light Sources via Frequency Map Analysis.*. Now associate professor in Univ. of Cape Town, South Africa.
2010–2012 : Ariadna Farrès
2017–2019 : Christian Zeeden
2018–2020 : Federico Mogavero
2018–2019 : Melaine Saillenfest

Research contracts

- 1994-1999 CEE Stability and Universality in Classical Mechanics
- 1997-1999 France-Berkeley grant with D. Robin (ALS) Particle accelerators dynamics
- 2001 -2002 CNRS Royal Society grant for paleoclimate study (N. Shackleton, Cambridge)
- 2006-2007 Marie Curie post doc : "Beam Stability in Modern Light Sources via Frequency Map Analysis" (with (C. Skokos) et l'ESRF (Y. Papaphillippou)) (2 years postdoc)
- 2006-2007 CNES R& D : Symplectic integrators (resp. J. Laskar) (40 k€)
- 2006-2007 CNES R& D : Development of planetary ephemrides (resp. J. Laskar, 110 k€)
- 2009 CNES R&D : Spacecraft in Lagrange point (resp. J. Laskar, 26 k€)
- 2007-2011 PI of ANR ASTS-CM :"Astronomical time scale for the cenozoic and mesozoic" (250 k€)
- 2008-2012 : GTSnext : European ITN network. Leader of a group (2 year postdoc)
- 2008 : PI of SESAME MESOP Computer center for Paris Observatory (500 k€ : 230 k€+ 270 k€)
- 2010 : PI of MesoPSL (part of equipex equipmeso) (920 k€)
- 2012 : PI of CNRS PICS France-Portugal : Dynamique et caractérisation des systèmes planétaires extra-solaires.
- 2017 : PI of MesoPSL-Astro-A project. Computer center (DimACAV+ and others) 517 k€
- 2018 : PI of MesoPSL-Astro-B project. Computer center (DimACAV+ and others) 616 k€
- 2019 : PI of ANR project AstroMeso : Astronomical solution for the Mesozoic Era, 594 k€

Main results

Long term evolution of the Solar system. Paleoclimates [21, 57, 68, 69, 108, 162]

— Construction of a solution for the motion of the planets of the solar system over 20 Myr (1993), 40 Myr (2004), and 50 Myr (2011). These solutions are world references since 1991 for paleoclimates studies of the Earth and Mars. They were used for the first astronomical calibration of the Neogene period (0–23.03 Myr) in the geological time scale GTS2004 adopted by the International commission of stratigraphy (ICS) in 2004 . Demonstration of the impossibility to predict the precise motion of the Earth beyond 60 Myr because of the gravitational perturbations of Ceres and Vesta and their chaotic behavior . Use of the geological record to retrieve information on the solar system beyond the 60 Myr predictability limit.

— First paleoclimate study of the layers observed in the Martian ice caps by Mars Global Surveyor. Analysis of Martian paleoclimates .

Chaotic motion of the Solar system [10, 13, 29, 32, 86, 94, 18]

— Discovery of the chaotic motion of the Solar System, and more paticularily of the inner solar system (Mercury, Venus, Earth, Mars), with a Lyapunov characteristic time scale of about 5 Myrs. Description of the main source of this chaotic behavior.

— First study of the diffusion of the orbital motion of the planets over billions of years. The motion of the outer planets (Jupiter, Saturn, Uranus, Neptune) is relatively regular. The diffusion of the orbits of Venus and the Earth is moderated. The diffusion of the orbits of Mercury and Mars is large. For Mercury, evidence of a possibility of collision with Venus in less than 5 Gyr. Confirmation of these results by direct integration in 2009, showing also the possibility of collision of Mercury, Venus, or Mars with the Earth in less than 5 Gyr .

Chaotic behavior of the obliquity of the planets [23, 25, 68]

— First global study of the stability and chaotic behavior of the spin axis of the planets in the Solar System. Evidence of regularity for the outer planets. Proposition of a scenario for the reversal of Venus rotation using the chaotic behavior of its spin axis.

— Demonstration of the present stability of the Earth spin axis. Discovery of a large chaotic zone for the obliquity of the Earth, ranging from 60 to 90 degrees.

— Discovery of the stabilizing effect of the Moon on the Earth axis : without the Moon, the Earth would be in a large chaotic zone allowing variations of the Earth obliquity from 0 to 85 degrees.

— Discovery of the chaotic behavior of the obliquity of Mars, with a chaotic zone ranging from 0 to 60 degrees.

AMD-stability and planetary accretion [48, 146, 147, 156]

— Construction of a small analytical model of planetary accretion based on the conservation of the angular momentum deficit (AMD) allowing to study the self organization of planetary systems.

— Exhibition and promotion of the AMD-stability for a global analysis of the dynamics of planetary systems.

Retrograde rotation of Venus. [52, 58, 59, 144]

— Long time study of the spin of Venus. Demonstration of the existence of 4 possible final states for a telluric planet with a dense atmosphere (with A. Correia). Evidence that the retrograde rotation of Venus is a natural outcome of its dynamics.

— Generalization of atmospheric thermal tides for all planets (with P. Auclair-Desrotour).

Mercury's 3/2 spin-orbit resonance. [66]

— Evidence that the chaotic behavior of the orbital motion of Mercury allows the planet to cross many times the 3/2 resonances during its history, thus increasing the capture probability into this resonance to about 55.4 %. The 3/2 spin orbit resonance thus becomes the most probable outcome of the planet (with A. Correia) .

Frequency analysis of dynamical systems. [13, 19, 22, 26, 31]

— Elaboration of the Frequency Map Analysis, a numerical method for the study of the global dynamics of Hamiltonian systems with several degrees of freedom (≥ 2). Clear visualisation of the chaotic diffusion and Arnold Web in several 3 degrees of freedom examples.
— Demonstration of the theoretical basis of the Frequency Map Analysis, and of its convergence for KAM regular orbits.

Beam stability in particle accelerators. [26, 49]

— First application of the Frequency Map Analysis to the global study of the dynamics in particle accelerators. First application to the improvement of the behavior of a real machine (ALS, Berkeley) (`http://cerncourier.com/cws/article/cern/28368`).
— First experimental frequency map of a working accelerator at ALS, Berkeley. Frequency map analysis has since become a standard technique for the improvement and maintenance of accelerators.

Development of the INPOP planetary ephemerides [84, 95, 110, 129, 135, 138]

— Construction (with A. Fienga, M. Gastineau, and H. Manche) of the high precision INPOP planetary ephemerides. INPOP is fitted to all available planetary observations, and is in par with the DE ephemerides from JPL/NASA. INPOP is the official ephemerides for the reduction of Gaia data, and is used to test alternative gravitational models at the Solar System scale (`http://www.imcce.fr/inpop`).
— Use of INPOP to constraint the existence of an additional planet P9 in the solar system.

Dynamics of extra solar planets [73, 90, 93, 98, 105, 114, 119, 127, 131, 132, 143]

— Characterization (with A. Correia and in collaboration with the HARPS group) of the dynamics of several multi-planetary extra solar systems. First system in 5 :1 resonance (HD202206). First system in 3 :2 resonance (HD45364). Demonstration of the existence of a 3 :1 resonance in HD60532. Determination of the inclinations in GJ876. Elaboration of an analytical method allowing to take into account the dissipative tidal effects in HD10180.

Construction of the computer algebra system TRIP [11, 77]

— Construction since 1988 (with M. Gastineau since 1998) of a general computer algebra system (TRIP) adapted to celestial mechanics and perturbation series (`http://www.imcce.fr/trip`). TRIP is at present the most powerful system for some polynomial computations.

History of astronomy [33, 128, 149]

— Historical search on the evolution of the understanting of the stability of the solar system from Newton to the present.
— Analysis of the work of Le Verrier in the "Comptes Rendus de l'Académie des Sciences".

Papers in international journals

[1] **Laskar, J.**, Marchal, C. : 1984, Triple close approach in the three-body problem. A limit for the bounded orbits, *Celest. Mech.*, **32**, 1–15

[2] Bretagnon, P., Simon, J-L., **Laskar, J.** : 1985, Presentation of new solar and planetary tables of interest for historical calculations, *Journal for the History of Astronomy*, **xvi**, 39–50

[3] **Laskar, J.** : 1985, Accurate methods in general planetary theory, *Astron. Astrophys.*, **144**, 133–146

[4] **Laskar, J.** : 1986, Secular terms of classical planetary theories using the results of general theory, *Astron. Astrophys.*, **157**, 59–70

[5] **Laskar, J.** : 1986, A general theory for the uranian satellites, *Astron. Astrophys.*, **166**, 349–358

[6] **Laskar, J.**and R.A. Jacobson : 1987, GUST86. An analytical ephemeris of the uranian satellites, *Astron. Astrophys.*, **188**, 212–234

[7] **Laskar, J.** : 1987, Secular evolution, proper modes and resonances in the inner Solar System, in Resonances in the Solar System, Sidlichovsky ed., Prague 1987

[8] **Laskar, J.** : 1988, Secular evolution of the Solar System over 10 million years, *Astron. Astrophys.*, **198**, 341–362

[9] **Laskar, J.**and J-L. Simon : 1988, Fitting a line to a sine, *Celest. Mech.*, **43**, 37–45

[10] **Laskar, J.** : 1989, A numerical experiment on the chaotic behaviour of the Solar System, *Nature*, **338**, 237–238

[11] **Laskar, J.** : 1990, Manipulation des Séries, in Méthodes Modernes de la Mécanique Céleste, D. Benest et C. Froeschlé eds., 63–88

[12] **Laskar, J.** : 1990, Systèmes de variables et éléments, in Méthodes Modernes de la Mécanique Céleste, D. Benest et C. Froeschlé eds., 89–109

[13] **Laskar, J.** : 1990, The chaotic motion of the Solar System. A numerical estimate of the size of the chaotic zones, *Icarus*, **88**, 266–291

[14] **Laskar, J.** : 1991, Analytical framework in Poincaré variables for the motion of the solar system, in Predictability, Stability and Chaos in n-body Dynamical Systems, A. Roy, ed., NATO ASI series B272, 93–114 (conférence invitée)

[15] **Laskar, J.** : 1991, Chaotic Behaviour of the Solar System, Reports on Astronomy, XXIA, 16-21, (revue invitée)

[16] **Laskar, J.** : 1992, A few points on the stability of the Solar System, in Symposium IAU 152, S. Ferraz-Mello ed. p. 1–16 (conférence invitée)

[17] **Laskar, J.** : 1992, La stabilité du Système solaire, dans les comptes rendus de "Jornades de Supercomputacio a Catalunya", FCR ed. p.125–135 (conférence invitée)

[18] **Laskar, J.**, Quinn, T., Tremaine, S. : 1992, Confirmation of Resonant Structure in the Solar System, *Icarus*, **95**, 148

[19] **Laskar, J.**, Froeschlé, Cl., Celletti, A. : 1992, The Measure of Chaos by the Numerical Analysis of the Fundamental Frequencies. Application to the Standard Mapping, *Physica D*, **56**, 253–269

[20] Berger, A., Loutre, M.F., **Laskar, J.** : 1992, Stability of the Astronomical Frequencies over the Earth's History for Paleoclimate Studies. *Science*, **255**, 560–566

[21] **Laskar, J.**, Joutel, F., Boudin, F. : 1993, Orbital, precessional, and insolation quantities for the Earth from -20Myr to +10 Myr, *Astron. Astrophys.* **270**, 522–533

[22] **Laskar, J.** : 1993, Frequency analysis for multi-dimensional systems. Global dynamics and diffusion, *Physica D*, **67**, 257–281

[23] **Laskar, J.**, Joutel, F., Robutel, P. : 1993, Stabilization of the Earth's obliquity by the Moon, *Nature*, **361**, 615–617, 18 février 1993

[24] **Laskar, J.** : 1993, Frequency analysis of a dynamical system, *Celest. Mech.* **56**, 191–196.

[25] **Laskar, J.**, Robutel, P. : 1993, The chaotic obliquity of the planets, *Nature*, **361**, 608–612, 18 février 1993

[26] Dumas, S., **Laskar, J.** : 1993, Global Dynamics and Long-Time Stability in Hamiltonian Systems Via Numerical Frequency Analysis, *Phys. Rev. Letters*, **70** (20), 2975–2979

[27] **Laskar, J.**, Joutel, F. : 1993, Orbital, rotational, and climate interactions, *Celest. Mech.* **57**, 293–294.

[28] **Laskar, J.** : 1993, The stability of the Solar System, in Ergodic concepts and stellar dynamics, D. Pfenniger, ed. *(revue invitée)*

[29] **Laskar, J.** : 1994, Large scale chaos in the Solar System, *Astron. Astrophys.*, **287**, L9–L12

[30] Simon, J.-L., Bretagnon, P., Chapront, J., Chapront-Touze, M., Francou, G., **Laskar, J.** : 1994, Numerical expressions for precession formulae and mean elements for the Moon and the planets, *Astron. Astrophys.*, **282**, 663.

[31] **Laskar, J.** : 1995, Frequency map analysis of an Hamiltonian system, Workshop on Nonlinear dynamics in particle accelerator, Arcidosso, AIP Conf. proc. **344** 130–159 *(revue invitée)*

[32] **Laskar, J.** : 1995, Large scale chaos and marginal stability in the Solar System, *invited plenary talk at the XIth ICMP meeting (Paris july 1994)*, International Press, pp. 75–120

[33] **Laskar, J.** : 1995 The Stability of the Solar System from Laplace to the Present, dans *General History of Astronomy*, R. Taton et Curtis Wilson eds.,vol. **2B**, pp. 240–248

[34] **Laskar, J.**, Robutel P. : 1995, Stability of the planetary three-body problem. I. Expansion of the planetary Hamiltonian, *Celest. Mech.*, **62**,193–217

[35] **Laskar, J.** : 1996, Marginal stability and Chaos in the Solar System, Dynamics, Ephemerides,and Astrometry of the Solar System, IAU Symposium 172, Paris, Ferraz Mello etal. eds, 75–88 *(revue invitée)*

[36] **Laskar, J.** : 1996, Large scale chaos and Marginal stability in the Solar System, *Celest. Mech.*, **64**, 115–162

[37] **Laskar, J.**, 1996, Chaos à grande échelle dans le Système solaire et implications planétologiques, *CRAS*, **322**, IIa, 163–180

[38] **Laskar, J.**, D. Robin : 1996, Application of frequency map analysis to the ALS, *Particle Accelerator*, **54**, 183–192

[39] Papaphilippou, Y, **Laskar, J.** : 1996, Frequency map analysis and global dynamics in a two degrees of freedom galactic potential, *Astron. Astrophys.*, **307**, 427–449

[40] Néron de Surgy, O. et **Laskar, J.** : 1996, ' On the long term evolution of the spin of the Earth', *Astron. Astrophys.*, **318**, 975–989

[41] **Laskar, J.** : 1997, 'Large scale chaos and the spacing of the inner planets', *Astron. Astrophys.*, **317**, L75–L78

[42] Papaphilippou, Y, **Laskar, J.** : 1998, Global dynamics of triaxial galactic models through frequency map analysis., *Astron. Astrophys.*, **329**, 451–481

[43] **Laskar, J.** : 1999, The limits of Earth orbital calculations for geological time scale use, *Phil. Trans. R. Soc. Lond. A.*, **357**, 1735–1759

[44] **Laskar, J.** : 1999, Introduction to frequency map analysis, in proc. of NATO ASI 533 3DHAM95, S'Agaro, Spain, 134–150 *(revue invitée)*

[45] Shackleton, N.J., Crowhurst, S.J., **Laskar, J.** : 1999, Astronomical calibration of Oligocene-Miocene time, *Phil. Trans. R. Soc. Lond. A.*, **357**, 1907–1929

[46] Carletti, T., **Laskar, J.** : 2000, Scaling law in the standard map critical function. Interpolating Hamiltonian and Frequency Map Analysis, *Nonlinearity*, **13**, 2033–2061

[47] **Laskar, J.** : 2000, Application of frequency map analysis in galactic dynamics, *in proc. The Chaotic Universe, Rome, Pescara, 1–5 fev 1999*, *Astrophysics and Cosmology*, **10**, 115–126

[48] **Laskar, J.** : 2000, On the spacing of planetary systems, *Phys. Rev. Let.*, **84**, 15, pp. 3240–3243

[49] Robin, D., Steir, C., **Laskar, J.**, Nadolski, L. : 2000, Global dynamics of the ALS revealed through experimental Frequency Map Analysis, *Phys. Rev. Let.*, **85**, pp. 558-561

[50] Chandre, C., **Laskar, J.**, Benfatto, G., Jauslin, H.R. : 2001, Determination of the breakup of invariant tori in three frequency Hamiltonian systems, *Physica D*, **154**, p. 159–170

[51] Robutel, P., **Laskar, J.** : 2001, Frequency Map and Global Dynamics in the Solar System I : Short period dynamics of massless particles, *Icarus*, **152**, 4–28

[52] Correia, A., **Laskar, J.** : 2001, The Four final Rotation States of Venus, *Nature*, **411**, 767–770, 14 june 2001

[53] **Laskar, J.**, Robutel, P. : 2001, High order symplectic integrators for perturbed Hamiltonian systems, *Celest. Mech.*, **80**, 39–62

[54] Steier, C., Robin, D., Nadolski, L., Decking, W., Wu, Y., **Laskar, J.** : 2002, Measuring and optimizing the momentum aperture in a particle accelerator, *Phys. Rev. E*, **65**, Issue 5, id. 056506

[55] Britzen, S., Roland, J., **Laskar, J.**, Kokkotas, K., Campbell, R. M., Witzel, A : 2002, On the origin of compact radio sources. The binary black hole model applied to the gamma-bright quasar PKS 0420-014, *Astron. Astroph.*, **374**, p.784–799

[56] Malige F., Robutel P., **Laskar, J.** : 2002. Partial reduction in the N-body planetary problem using the angular momentum integral. *Celestial Mechanics* **84**, 283-316

[57] **Laskar, J.**, Levrard, B., Mustard, J. : 2002, Orbital forcing of the Martian polar layered deposits, *Nature*, **419**, 375–377

[58] Correia, A., **Laskar, J.**, Néron de Surgy, O. : 2003, Long term evolution of the spin of Venus - I. Theory, *Icarus*, **163**, 1–23

[59] Correia, A., **Laskar, J.** : 2003, Long term evolution of the spin of Venus - II. Numerical simulations, *Icarus*, **163**, 24–45

[60] Levrard, B., **Laskar, J.** : 2003, Climate friction and the Earth's obliquity, *Journal Geophys. Int.*, **154**, 970–990

[61] Boatto, S., **Laskar, J.** : 2003, Point-vortex cluster formation in the plane or on the sphere : an energy bifurcation condition, *Chaos*, **13**, 824–835

[62] **Laskar, J.** : 2003, Frequency Map Analysis and Particle Accelerators, Particle Accelerator Conference, Portland, 12-16 May 2003, WOAB001 (revue invitée)

[63] **Laskar, J.** : 2003, Chaos in the Solar System, (conférence plénière) in Proceedings of the International Congress on Theoretical Physics, D. Iagolnitzer, V. Rivasseau, J. Zinn-Justin (eds.),
Paris, July 2002, ISBN 3-7643-2433-3, Birkhäuser 2003 *Ann. Henri Poincaré*, **4**, Suppl. 2, S693–S705

[64] Correia, A., **Laskar, J.** : 2003, Different tidal torques on a planet with a dense atmosphere and consequences to the spin dynamics, *JGR*, **108**, E11, pp. 9-1, (CiteID 5123, DOI 10.1029/2003JE002059)

[65] Nadolski, L., **Laskar, J.** : 2003, Review of third generation light sources through frequency map analysis, *Phys. Rev. ST Accel. Beams* **6**, 114801 (http ://link.aps.org/abstract/PRSTAB/v6/e114801)

[66] Correia, A., **Laskar, J.** : 2004, Mercury's capture into the 3/2 spin-orbit resonance as a result of its chaotic dynamics *Nature*, **429**, 848-850

[67] **Laskar, J.** : 2004, A comment on 'Accurate spin axes and solar system dynamics' *A&A*, **416**, 799–800

[68] **Laskar, J.**, Correia, A., Gastineau, M., Joutel, F., Levrard, B., Robutel, P. : 2004, Long term evolution and chaotic diffusion of the insolation quantities of Mars, *Icarus*, **170**, 343–364

[69] **Laskar, J.**, Robutel, P., Joutel, F., Gastineau, M., Correia, A. C. M., Levrard, B. : 2004, A long term numerical solution for the insolation quantities of the Earth,
A&A, **428**, 261–285

[70] Levrard, B., Forget, F., Montmessin, F., **Laskar, J.**, : 2004, Recent ice-rich deposits formed at high-latitudes on Mars by sublimation of unstable equatorial ice during low obliquity, *Nature,* **431**, 1072–1075

[71] Lourens, L.J., Hilgen, F.J., Shackleton N.J., **Laskar, J.**, and Wilson, D. : 2004, The Neogene Period. In F. Gradstein, J. Ogg et al. - A Geologic Time Scale 2004. Cambridge University Press, UK

[72] Paelike, H., **Laskar, J.**, Shackleton N.J. : 2004, Geological constraints on the chaotic diffusion of the Solar System, *Geology*, **32**, 929–932

[73] Correia, A.C.M., Udry, S., Mayor, M., **Laskar, J.**, Naef, D., Pepe, F., Queloz, D., Santos, N.C. : 2005 The CORALIE survey for southern extra-solar planets XIII. A pair of planets around HD202206 or a circumbinary planet ?, *A&A*, **440**, 751–758

[74] **Laskar, J.** : 2005, Note on the generalized Hansen and Laplace coefficients, *Celest. Mech.*,**91**, 351–356

[75] **Laskar, J.** : 2005, Frequency Map analysis and quasi periodic decompositions, in "Hamiltonian systems and Fourier analysis", Benest *et al.*, eds, Taylor and Francis

[76] Boué, G., **Laskar, J.** : 2006, Precesion of a planet with a satellite *Icarus*, **185**, 312–330

[77] Gastineau M, **Laskar, J.**, 2006, Development of TRIP : Fast sparse multivariate polynomial multiplication using burst tries *LECTURE NOTES IN COMPUTER SCIENCE*, **3992**, 446–453

[78] Lovis C, Mayor M, Pepe F, Alibert Y, Benz W, Bouchy F, Correia ACM, **Laskar, J.**, Mordasini C, Queloz D, Santos NC, Udry S, Bertaux JL, Sivan JP : 2006, An extrasolar planetary system with three Neptune-mass planets, *Nature,* **441**, 305–309

[79] Westerhold, T., Röhl, U., **Laskar, J.**, Raffi, I., Bowles, J., Lourens, L. J., Zachos, C. : 2007, New high-resolution chronology from the first complete late Paleocene – early Eocene marine records from Walvis Ridge : duration of Chron 24r and new constraints on the timing of early Eocene global warming events *Paleoceanography* **22 (1)** Art. No. PA2201

[80] F. Pepe, A.C.M. Correia, M. Mayor, O. Tamuz, J. Couetdic, W. Benz, J.-L. Bertaux, F. Bouchy, **Laskar, J.**, C. Lovis, D. Naef, D. Queloz, N. C. Santos, J.-P. Sivan, D. Sosnowska, and S. Udry : 2007, The HARPS search for southern extra-solar planets VIII. μ Ara, a system with four planets, *A&A*, **462**, 769–776

[81] Levrard, B., Correia, A.C.M., Chabrier, G., Baraffe, I., Selsis, F. and **Laskar, J.**, 2007, Tidal dissipation in Hot Jupiters : a new appraisal, *A&A*, **462**, L5–L8

[82] Levrard, B., Forget, F., Montmessin, F. and **Laskar, J.**, 2007 Recent formation and evolution of northern Martian polar layered deposits as inferred from a Global Climate Model, *J. Geophys. Res. Planets*, **112(E6)**, Art. No. E06012

[83] Nedelec A., Ramstein G., **Laskar, J.**, 2007, Freezing and unfreezing of the Neoproterozoic snowball Earth : From field evidence to climate models *CRAS* **339 (3-4)**, 181–185

[84] Fienga, A., Manche, H., **Laskar, J.**, Gastineau, M., 2008, INPOP06. A new numerical planetary ephemeris, *A&A*, **477**, 315–327

[85] Correia, A.C.M., Levrard, B., **Laskar, J.** : 2008, On the equilibrium rotation of Earth-like extra-solar planets *A&A*, **488**, L63–L66

[86] **Laskar, J.** : 2008, Chaotic diffusion in the Solar System *Icarus*, **196**, 1–15

[87] Wolf, P., Bordé, Ch. J., Clairon, A., Duchayne, L., Landragin, A., Lemonde, P., Santarelli, G., Ertmer, W., Rasel, E., Cataliotti, F. S., Inguscio, M., Tino, G. M., Gill, P., Klein, H., Reynaud, S., Salomon, C., Peik, E., Bertolami, O., Gil, P., Páramos, J., Jentsch, C., Johann, U., Rathke, A., Bouyer, P., Cacciapuoti, L., Izzo, D., De Natale, P., Christophe, B., Touboul, P., Turyshev, S. G., Anderson, J. D., Tobar, M. E., Schmidt-Kaler, F., Vigué, J., Madej, A., Marmet, L., Angonin, M-C., Delva, P., Tourrenc, P., Metris, G., Müller, H., Walsworth, R., Lu, Z. H., Wang, L., Bongs, K., Toncelli, A., Tonelli, M., Dittus, H., Lämmerzahl, C., Galzerano, G., Laporta, P., **Laskar, J.**, Fienga, A., Roques, F., Sengstock, K. : 2008, Quantum Physics Exploring Gravity in the Outer Solar System : 2009, The Sagas Project, *Experimental Astronomy*, **23**, 651–687

[88] Boué, G., **Laskar, J.** : 2009, Spin axis evolution of two interacting bodies, *Icarus*, **201**, 750-767

[89] Boué, G., **Laskar, J.**, Kuchynka, P. : 2009, Speed limit on Neptune migration imposed by Saturn tilting , *ApJL*, **702**, L19-L22

[90] Correia, A. C. M. ; Udry, S. ; Mayor, M. ; Benz, W. ; Bertaux, J. -L. ; Bouchy, F. ; **Laskar, J.** ; Lovis, C. ; Mordasini, C. ; Pepe, F. ; Queloz, D. : 2009, The HARPS search for southern extra-solar planets XVI. HD45364, a pair of planets in a 3 :2 mean motion resonance, *A&A*, **496**, 521-526

[91] Correia A.C.M., **Laskar, J.** : 2009, Mercury's capture into the 3/2 spin-orbit resonance including the effect of core-mantle friction, *Icarus*, **201**, 1–11

[92] Farago F., **Laskar, J.**, Couetdic J. : 2009, Averaging on the motion of a fast revolving body. Application to the stability study of a planetary system, *Celest. Mech.*,**104**, 291–306

[93] **Laskar, J.**, Correia, A.C.M. : 2009, HD60532, a planetary system in a 3 :1 mean motion resonance, *A&A*, **496**, L5–L8

[94] **Laskar, J.**, Gastineau, M. : 2009, Existence of colisional trajectories of Mercury, Mars and Venus with the Earth *Nature*, **459**, 817–819

[95] Fienga, A., **Laskar, J.**, Morley, T., Manche, H., Kuchynka, P., Le Poncin-Lafitte, C., Budnik, F., Gastineau, M., Somenzi, L. : 2009, INPOP08, a 4-D planetary ephemeris : from asteroid and time-scale computations to ESA Mars Express and Venus Express contributions, *A&A*, **507**, 1675–1686

[96] Farago F., **Laskar, J.** : 2010, High inclination orbits in the secular quadrupolar three-body problem *MNRAS*,**401**, 1189–1198

[97] Correia A.C.M., **Laskar, J.** : 2010, Long-term evolution of the spin of Mercury I. Effect of the obliquity and core–mantle friction, *Icarus*, **205**, 338-355

[98] A.C.M. Correia, J. Couetdic, **Laskar, J.**, X. Bonfils, M. Mayor, J.-L. Bertaux, F. Bouchy, X. Delfosse, T. Forveille, C. Lovis, F. Pepe, C. Perrier, D. Queloz, and S. Udry : 2010, The HARPS search for southern extra-solar planets XIX. Characterization and dynamics of the GJ 876 planetary system, *A&A*, **511**, A21

[99] Boué, G., **Laskar, J.** : 2010, A collision–less scenario for Uranus tilting, *ApJL*, **712**, L44-L47

[100] Somenzi, L., Fienga, A., **Laskar, J.**, Kuchynka, P. : 2010, Determination of asteroid masses from their encounters with Mars, *PSPS*, **58**, 858–863

[101] Kuchynka, P., **Laskar, J.**, Fienga, A., Manche, H. : 2010, A ring as a model of the main belt in planetary ephemerides, *A&A*, **514**, A96

[102] Couetdic, J., **Laskar, J.**, Correia, A.C.M., Mayor, M., Udry, S. : 2010, Dynamical stability analysis of the HD202206 system and constraints to the planetary orbits, *A&A*, **519**, A10

[103] **Laskar, J.**and Boué, G. : 2010, Explicit expansion of the three-body disturbing function for arbitrary eccentricities and inclinations, *A&A*, **522**, A60

[104] Jovane, L., Sprovieri, M., Coccioni, R., Florindo, F., Marsili, A., **Laskar, J.** : 2010, Astronomical calibration of the middle Eocene Contessa Highway section (Gubbio, Italy) *EPSL*, **298**, 77–88

[105] C. Lovis, D. Ségransan, M. Mayor, S. Udry, W. Benz, J.-L. Bertaux, F. Bouchy, A.C.M. Correia, **Laskar, J.**, G. Lo Curto, C. Mordasini, F. Pepe, D. Queloz, and N.C ; Santos : 2011, The HARPS search for southern extra-solar planets XXVIII. Up to seven planets orbiting HD 10180 : probing the architecture of low-mass planetary systems, *A&A*, **528**, A112

[106] Husson, D., Galbrun, B., **Laskar, J.**, Hinnov, L.A., Thibault, N., Gardin, S., Locklair, R.E. : 2011, Astronomical calibration of the Maastrichtian (Late Cretaceous) *EPSL*, **305**, 328–340

[107] **Laskar, J.**, Fienga, A., Gastineau, M., Manche, H. : 2011, La2010 : a new orbital solution for the long-term motion of the Earth, *A&A*, **532**, A89

[108] **Laskar, J.**, Gastineau, M., Delisle, J.-B., Farres, A., Fienga, A. : 2011, Strong chaos induced by close encounters with Ceres and Vesta, *A&A*, **532**, L4

[109] Correia, A.C.M., **Laskar, J.**, Farago, F., Boue, G. : 2011, Tidal evolution of hierarchical and inclined systems, *Celest. Mech.*,**111**, 105–130

[110] Fienga, A., **Laskar, J.**, Kuchynka, P., Manche, H., Desvignes, G., Gastineau, M., Cognard, I., Theureau, G. : 2011, The INPOP10a planetary ephemeris and its applications in fundamental physics, *Celest. Mech.*,**111**, 363–385

[111] Boulila, S., Galbrun, B., Miller, K.G., Pekar, S.F., Browning, J.V., **Laskar, J.**, Wright, J.D. : 2011, On the origin of Cenozoic and Mesozoic "third-order" eustatic sequences, *Earth-Scinece Reviews*,**109**, 94–112

[112] Wieczorek, M.A., Correia, A.C.M., Le Feuvre, M., **Laskar, J.**, Rambaux, N. : 2012, Mercury's spin-orbit resonance explained by initial retrograde and subsequent synchronous rotation, *Nature Geoscience*, **5**, 18–21

[113] Correia, A.C.M., Boue, G., **Laskar, J.** : 2012, Pumping the eccentricity of exoplanets by tidal effect, *ApJL*, **744**, L23

[114] **Laskar, J.**, Boue, G., Correia, A. C. M. : 2012, Tidal dissipation in multi-planet systems and constraints on orbit fitting, *A&A*, **538**, A105

[115] Boulila, S., Galbrun, B., **Laskar, J.**, Palike, H. : 2012, A similar to 9 myr cycle in Cenozoic delta C-13 record and long-term orbital eccentricity modulation : Is there a link ?, *EPSL*, **317**, 273–281

[116] Delisle, J.-B., **Laskar, J.** : 2012, Chaotic diffusion of the Vesta family induced by close encounters with massive asteroids, *A&A*, **540**, A118

[117] Correia, A.C.M., **Laskar, J.** : 2012, Impact cratering on Mercury : consequences for the spin evolution, *ApJL*, **751**, L43

[118] Westerhold, T., Roehl, U., **Laskar, J.** : 2012, Time scale controversy : Accurate orbital calibration of the early Paleogene *Geochem. Geophys. Geosys.*, **13**, Q06015

[119] Delisle, J.-B., **Laskar, J.**, Correia, A.C.M., Boué, G. : 2012, Dissipation in planar resonant planetary systems *A&A*, **546**, A71

[120] Boué, G., **Laskar, J.**, Farago : 2012, A simple model of the chaotic eccentricity of Mercury *A&A*, **548**, A43

[121] F. Malbet, A. Leger, M. Shao, R. Goullioud, P.-O. Lagage, A. G. A. Brown, C. Cara, G. Du- rand, C. Eiroa, P. Feautrier, B. Jakobsson, E. Hinglais, L. Kaltenegger, L. Labadie, A.-M. Lagrange, **Laskar, J.**, R. Liseau, J. Lunine, J. Maldonado, M. Mercier, C. Mordasini, D. Queloz, A. Quirrenbach, A. Sozzetti, W. Traub, O. Absil, Y. Alibert, A. H. Andrei, F. Arenou, C. Beichman, A. Chelli, C. S. Cockell, G. Duvert, T. Forveille, P. J. V. Garcia, D. Hobbs, A. Krone-Martins, H. Lammer, N. Meu- nier, S. Minardi, A. M. de Almeida, N. Rambaux, S. Raymond, H. J. A. Roettgering, J. Sahlmann, P. A. Schuller, D. Segransan, F. Selsis, J. Surdej, E. Villaver, G. J. White, and H. Zinnecker : 2012, High precision astrometry mission for the detection and characterization of nearby habitable planetary systems with the nearby earth astrometric telescope (NEAT),*Experimental Astronomy*, **34**, 385-–413

[122] S. J. Batenburg, M. Sprovieri, A. S. Gale, F. J. Hilgen, S. Husing, **Laskar, J.**, D. Liebrand, F. Lirer, X. Orue-Etxebarria, N. Pelosi, and J. Smith : 2012, Cyclostratigraphy and astronomical tuning of the late maastrichtian at zumaia (basque country, northern spain),*EPSL*, **359**, 264-–278

[123] Farres, A. , **Laskar, J.**, Blanes, S. , Casas, F., Makazaga, J. : 2013, High precision symplectic integrators for the Solar System, *Celest. Mech.*,**116**, 141–174

[124] Blanes, S., Casas, F., Farres, A., **Laskar, J.**, Makazaga, J., Murua, A. : 2013, New families of symplectic splitting methods for numerical integration in dynamical astronomy, *APPLIED NUMERICAL MATHEMATICS*, **68**, 58–72

[125] Verma, AK., Fienga, A., **Laskar, J.**, Issautier, K., Manche, H., Gastineau, M. : 2013, Electron density distribution and solar plasma correction of radio signals using MGS, MEX, and VEX spacecraft navigation data and its application to planetary ephemerides *A&A*, **550**, A124

[126] Correia, ACM, Boue, G., **Laskar, J.**, Morais, MHM. : 2013, Tidal damping of the mutual inclination in hierarchical systems, *A&A*, **553**, A39

[127] Bonfils, X., Lo Curto, G., Correia, ACM., **Laskar, J.**, Udry, S., Delfosse, X., Forveille, T., Astudillo-Defru, N., Benz, W., Bouchy, F., 2013 The HARPS search for southern extra-solar planets XXXIV. A planetary system around the nearby M dwarf GJ 163, with a super-Earth possibly in the habitable zone *A&A*, **556**, A110

[128] **Laskar, J.** : 2013, Is the Solar System Stable ? Progress in Mathematical Physics Volume 66, 2013, pp 239-270

[129] Verma, AK ; Fienga, A ; **Laskar, J.** ; Manche, H ; Gastineau, M : 2014, Use of MESSENGER radioscience data to improve planetary ephemeris and to test general relativity *A&A*, **561**, A115

[130] ACM Correia, Boué, G. **Laskar, J.**. Rodríguez, A. : 2014, Deformation and tidal evolution of close-in planets and satellites using a Maxwell viscoelastic rheology, *A&A*,**571**, A50, 16pp.

[131] J.-B. Delisle and **Laskar, J.** : 2014, Tidal dissipation and the formation of kepler near-resonant planets. *A&A*,**570**, L7, 3pp.

[132] J.-B. Delisle, **Laskar, J.**, and A. C. M. Correia. : 2014, Resonance breaking due to dissipation in planar planetary systems. *A&A*,**566**, A137, 14pp.

[133] Delisle, J-B., **Laskar, J.**, Correia, A.C.M. : 2015, Stability of resonant configurations during the migration of planets and constraints on disk-planet interactions, *A&A*,**579**, A128

[134] D. Cunha, A. C. M. Correia, and **Laskar, J.**. : 2015, Spin evolution of earth-sized exoplanets, including atmospheric tides and core-mantle friction. *Int. Journal of Astrobiology*, **14**,2, pp233-254

[135] Fienga, A. and **Laskar, J.**and Exertier, P. and Manche, H. and Gastineau, M. : 2015 Numerical estimation of the sensitivity of INPOP planetary ephemerides to general relativity parameters *Celest. Mech.*,**123**, 325–349

[136] G. Boué, A. C. M. Correia, and **Laskar, J.**. : 2016, Complete spin and orbital evolution of close-in bodies using a Maxwell viscoelastic rheology. *Celest. Mech.*,**126**, 31—60

[137] A. C. M. Correia, G. Boué, and **Laskar, J.** : 2016, Secular and tidal evolution of circumbinary systems.*Celest. Mech.*,**126**, 189-–225

[138] A. Fienga, **Laskar, J.**, H. Manche, and M. Gastineau : 2016, Constraints on the location of a possible 9th planet derived from the Cassini data. *A&A*,**587**, L8

[139] Hébrard, G. , Arnold, L. , Forveille, T. , Correia, A. C. M. , **Laskar, J.**, Bonfils, X. , Boisse, I. , Díaz, R. F. , Hagelberg, J. , Sahlmann, J. , Santos, N. C. , Astudillo-Defru, N. , Borgniet, S. , Bouchy, F. , Bourrier, V. , Courcol, B. , Delfosse, X. , Deleuil, M. , Demangeon, O. , Ehrenreich, D. , Gregorio, J. , Jovanovic, N. , Labrevoir, O. , Lagrange, A.-M. , Lovis, C. , Lozi, J. , Moutou, C. , Montagnier, G. , Pepe, F. , Rey, J. , Santerne, A. , Ségransan, D. , Udry, S. , Vanhuysse, M. , Vigan, A. , Wilson, P. A : 2016 The SOPHIE search for northern extrasolar planets : X. Detection and characterization of giant planets by the dozen, *A&A*,**588**, A145

[140] A. Prsa, P. Harmanec, G. Torres, E. Mamajek, M. Asplund, N. Capitaine, Jørgen Christensen-Dalsgaard, E. Depagne, M. Haberreiter, S. Hekker, J. Hilton, G. Kopp, Veselin Kostov, D. W. Kurtz, **Laskar, J.**, B. D. Mason, E. F. Milone, M. Montgomery, Mercedes Richards, W. Schmutz, J. Schou, and S. G. Stewart : 2016, Nominal Values for Selected Solar and Planetary Quantities : IAU 2015 Resolution B3. *AJ*, **152**, 41

[141] Santos, N. C. , Santerne, A. , Faria, J. P. , Rey, J. , Correia, A. C. M. , **Laskar, J.**, Udry, S. , Adibekyan, V. , Bouchy, F. , Delgado-Mena, E. , Melo, C. , Dumusque, X. , Hébrard, G. , Lovis, C. , Mayor, M. , Montalto, M. , Mortier, A. , Pepe, F. , Figueira, P. , Sahlmann, J. , Ségransan, D. , Sousa, S. G. : 2016, An extreme planetary system around HD 219828 : One long-period super Jupiter to a hot-Neptune host star. *A&A*,**592**,A13

[142] **Laskar, J.**. Andoyer construction for hill and delaunay variables, 2017, *Celest. Mech.*,**128**, 475-–482

[143] N. C. Hara, G. Boué, **Laskar, J.**, and A. C. M. Correia : 2017, Radial Velocity Data Analysis with Compressed Sensing Techniques. *MNRAS*, **464**, 1220–1246

[144] Auclair-Desrotour, P., **Laskar, J.**, Mathis, S., Correia, A. C. M. : 2017, The rotation of planets hosting atmospheric tides : from Venus to habitable super-earths. *A&A*,**603**, A108 (5p)

[145] Auclair-Desrotour, P., **Laskar, J.**, Mathis, S. : 2017, Atmospheric tides in Earth-like planets. *A&A*,**603**, A107 (44p)

[146] **Laskar, J.**, Petit, A. : 2017, AMD-stability and the organisation of planetary systems. *A&A*,**605**, A72 (16p)

[147] A. Petit, **Laskar, J.**, G. Boué : 2017, AMD-stability in presence of first order Mean Motion Resonances. *A&A*,**607**, A35 (17p)

[148] Dumusque, X. ; Borsa, F. ; Damasso, M. ; Díaz, R. F. ; Gregory, P. C. ; Hara, N. C. ; Hatzes, A. ; Rajpaul, V. ; Tuomi, M. ; Aigrain, S. ; Anglada-Escudé, G. ; Bonomo, A. S. ; Boué, G. ; Dauvergne, F. ; Frustagli, G. ; Giacobbe, P. ; Haywood, R. D. ; Jones, H. R. A. ; **Laskar, J.** ; Pinamonti, M. ; Poretti, E. ; Rainer, M. ; Ségransan, D. ; Sozzetti, A. ; Udry, S : 2017, Radial-velocity fitting challenge. II. First results of the analysis of the data set, *A&A*,**598**, A133

[149] **Laskar, J.**. From Le Verrier's first works to the discovery of Neptune : 2017, *CRAS Physique*, **18** , 504–519

[150] Auclair-Desrotour, P., Mathis, S., **Laskar, J.**, 2018 : Atmospheric thermal tides and planetary spin-I. The complex interplay between stratification and rotation *A&A*, **609**, A118

[151] Auclair-Desrotour, P., Mathis, S., **Laskar, J.**, and Leconte, J., 2018 : Oceanic tides from Earth-like to ocean planets. *A&A*, **615**, A23

[152] Westerhold, T., Roehl, U., Donner, B., Frederichs, T., Kordesch, W. E. C., Bohaty, S. M., Hodell, D. A., **Laskar, J.**, and Zeebe, R. E., 2018 : Late Lutetian Thermal MaximumCrossing a Thermal Threshold in Earth's Climate System ? *Geochemistry Geophysics Geosystems*, **19(1)**, 73-–82.

[153] Boulila, S., **Laskar, J.**, Haq, B. U., Galbrun, B., and Hara, N., 2018 : Long-term cyclicities in Phanerozoic sea-level sedimentary record and their potential drivers. *Global and Planetary Change*, **165**, 128-–136.

[154] Boulila, S., Vahlenkamp, M., De Vleeschouwer, D., **Laskar, J.**, Yamamoto, Y., Paelike, H., Turner, S. K., Sexton, P. F., Westerhold, T., and Roehl, U., 2018 : Towards a robust and consistent middle Eocene astronomical timescale. *EPSL*, **486**, 94—107

[155] Charbonnier, G., Boulila, S., Spangenberg, J. E., Adatte, T., Follmi, K. B., and **Laskar, J.**, 2018 : Obliquity pacing of the hydrological cycle during the Oceanic Anoxic Event 2. *EPSL*, **499**, 266—277

[156] Petit, A. C., **Laskar, J.**, and Boué, G., 2018 : Hill stability in the AMD framework. *A&A*, **617**, A93

[157] Zeeden, C., Kaboth, S., Hilgen, F. J., and **Laskar, J.**, 2018 : Taner filter settings and automatic correlation optimisation for cyclostratigraphic studies *Computers & Geosciences*, **119**, 18–28

[158] Viswanathan, V. ; Fienga, A. ; Minazzoli, O. ; Bernus, L. ; **Laskar, J.** ; Gastineau, M : 2018, The new lunar ephemeris INPOP17a and its application to fundamental physics *MNRAS*, **476 (2)**, 1877–1888

[159] Akinsanmi, B. ; Barros, S. C. C. ; Santos, N. C. ; Correia, A. C. M. ; Maxted, P. F. L. ; Boué, G. ; **Laskar, J.**, 2019 : Detectability of shape deformation in short-period exoplanets, *A&A*, **621**, A117, 9pp

[160] Vaillant, T., **Laskar, J.**, Rambaux, N., Gastineau, M., 2019 : Long-term orbital and rotational motions of Ceres and Vesta *A&A*, **622**, A95

[161] **Laskar, J.**, Vaillant, T., 2019 : Dedicated symplectic integrators for rotation motions, *Celest. Mech.*, **131** 03

[162] Olsen, P.E., **Laskar, J.**, Kent, D.V. , Kinney, S.T. ,Reynolds, D.J., Sha, J., and Whiteside, J.H., 2019 : The Geological Orrery. Mapping Chaos in the Solar System, *PNAS*, 201813901

[163] M. Saillenfest, **Laskar, J.**, and G. Boué : 2019, Secular spin-axis dynamics of exoplanets *A&A*, **623**, A4, 21pp

[164] C. Zeeden, S. R. Meyers, F. J. Hilgen, L. J. Lourens, and **Laskar, J.** : 2019, Time scale evaluation and the quantifi- cation of obliquity forcing. *Quaternary Science Reviews*, **209**, 100-–113

[165] Petit, A. C. **Laskar, J.**,Boué, G. Gastineau, M. :2019, High-order regularised symplectic integrator for collisional planetary systems, *A&A*, **628**, A32, 13pp .

[166] Viswanathan, V., Rambaux, N., Fienga, A., **Laskar, J.**, Gastineau, M. : 2019, Observational Constraint on the Radius and Oblateness of the Lunar Core-Mantle Boundary, *GRL*, **46**, 7295–7303

[167] Zisopoulos, P., Papaphilippou, Y., **Laskar, J.** : 2019, Refined betatron tune measurements by mixing beam position data, *Phys. Rev. Accel. and Beams*, **22**, 071002, 17pp

[168] Y.N. Fu and **Laskar, J.** :2019, Frequency analysis and the representation of slowly diffusing planetary solutions, *A&A*, **628**, A84, 13pp

[169] Hara, N. C., Boué, G., **Laskar, J.**, Delisle, J.-B., Unger, N. : 2019, Bias and robustness of eccentricity estimates from radial velocity data, *MNRAS*, **489**, 738–762

[170] L. Bernus, O. Minazzoli, A. Fienga, M. Gastineau, **Laskar, J.** : 2019, Constraining the mass of the graviton with the planetary ephemeris INPOP *PRL*, **123(16)**, 161103

[171] Dalal, S. , Hébrard, G., Lecavelier des Étangs, A., Petit, A. C., Bourrier, V., **Laskar, J.**, König, P.-C., Correia, A. C. M. : 2019, Nearly Polar orbit of the sub-Neptune HD3167 c : Constraints on a multi-planet system dynamical history. *A&A*, **631**, A28, 12pp

[172] R. H. Soja, E. Grün, P. Strub, M. Sommer, M. Millinger, J. Vaubaillon, W. Alius, G. Camodeca, F. Hein, **Laskar, J.**et al. (7 more) : 2019, IMEM2 : a meteoroid environment model for the inner solar system *A&A*, **628**, A109