

# MURAT KAPLAN

## ASSOC. PROF.

Email : [muratkaplan@akdeniz.edu.tr](mailto:muratkaplan@akdeniz.edu.tr)

Office Phone : [+90 242 310 2244](tel:+902423102244)

### International Researcher IDs

ScholarID: X-5yC8sAAAAJ

ORCID: 0000-0003-2595-5463

Publons / Web Of Science ResearcherID: D-5149-2013

ScopusID: 14822214300

Yoksis Researcher ID: 148701

### Learning Knowledge

Doctorate

2001 - 2009

Istanbul Technical University, Bilişim Enstitüsü, Bilişim, Turkey

Postgraduate

1998 - 2001

Istanbul Technical University, Nükleer Enerji Enstitüsü, Nükleer Bilimler, Turkey

Undergraduate

1991 - 1996

Istanbul University, Faculty Of Science, Astronomi Ve Uzay Bilimleri, Turkey

### Foreign Languages

English, B2 Upper Intermediate

### Academic Titles / Tasks

Associate Professor

2022 - Continues

Akdeniz University, Faculty of Science, Department of Space Sciences and Technologies

Assistant Professor

2011 - Continues

Akdeniz University, Faculty of Science, Department of Space Sciences and Technologies

Researcher

2009 - 2010

University of Wales, Cardiff, The School Of Physics And Astronomy , Star Formation

Research Assistant

2001 - 2010

Istanbul Technical University, Bilişim Enstitüsü, Bilişim

### Supported Projects

1. Bakış V., Kaplan M., TÜBİTAK Project, Duyarlılığı Arttırılmış Gözlemlerle Potansiyel Tehlikeli Asteroidlerin

Astrometrisi, 2018 - 2022

2. KAPLAN M., TUBITAK Project, Yer Ile Eş-Yörüngelerdeki Asteroidlerin Yörünge Kararlılıklarının İncelenmesi, 2018 - 2019
3. Kaplan M., Eker Z., TUBITAK Project, Dünya ya Yakın Asteroidlere Kaynaklık Eden Asteroid Bölgelerinin Araştırılması, 2014 - 2016

## Jury Memberships

Doctorate, Doctorate, Akdeniz Üniversitesi, December, 2022

Post Graduate, Volkan Sarp'ın Tez Savunması Jüri Üyeliği,, Akdeniz Üniversitesi, Fen Bilimleri Enstitüsü, July, 2018

Post Graduate, Saliha Eren'in Tez Savunması Jüri Üyeliği, Akdeniz Üniversitesi, Fen Bilimleri Enstitüsü, January, 2017

Post Graduate, Gülizar Aysan'ın Tez Savunması Jüri Üyeliği,, Akdeniz Üniversitesi, Fen Bilimleri Enstitüsü, July, 2015

## Published journal articles indexed by SCI, SSCI, and AHCI

1. **Physical properties of the slow-rotating near-Earth asteroid (2059) Baboquivari from one apparition**  
Erece O., Khamitov I., Kaplan M., Kilic Y., Lee H., Kim M., Bikmaev I. F., Gumerov R. I., Irtuganov E. N.  
PLANETARY AND SPACE SCIENCE, vol.232, pp.1-9, 2023 (SCI-Expanded)
2. **Reflectivity of Venus's Dayside Disk During the 2020 Observation Campaign: Outcomes and Future Perspectives**  
Lee Y. J., Muñoz A. G., Yamazaki A., Quémerais E., Mottola S., Hellmich S., Granzer T., Bergond G., Roth M., Gallego-Cano E., et al.  
American Astronomical Society The Planetary Science Journal, vol.3, 2022 (SCI-Expanded)
3. **Occultation Portal: a web-based platform for data collection and analysis of stellar occultations**  
Kilic Y., Braga-Ribas F., Kaplan M., Erece O., Souami D., Dindar M., Desmars J., Sicardy B., Morgado B. E., Shameoni M. N., et al.  
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY, vol.514, no.3, pp.1-12, 2022 (SCI-Expanded)
4. **Apophis Planetary Defense Campaign**  
Reddy, V., Kelley M. S., Kaplan M., Dotson J., Farnocchia D., Erasmus N., Polishook D.  
PLANETARY SCIENCE JOURNAL, vol.3, 2022 (SCI-Expanded)
5. **Refinement of the convex shape model and tumbling spin state of (99942) Apophis using the 2020-2021 apparition data**  
Lee H. -, Kim M. -, Marciniak A., Kim D. -, Moon H. -, Choi Y. -, Zoła S., Chatelain J., Lister T. A., Gomez E., et al.  
ASTRONOMY AND ASTROPHYSICS, vol.661, pp.1-14, 2022 (SCI-Expanded)
6. **Horseshoe co-orbitals of Earth: current population and new candidates**  
Kaplan M., Cengiz S.  
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY, vol.496, no.4, pp.4420-4432, 2020 (SCI-Expanded)
7. **Shape model and spin state of non-principal axis rotator (5247) Krylov**  
Lee H. -, Durech J., Kim M. -, Moon H. -, Kim C. -, Choi Y. -, Galad A., Pray D., Marciniak A., Kaplan M., et al.  
ASTRONOMY & ASTROPHYSICS, vol.635, 2020 (SCI-Expanded)
8. **Shape and spin determination of Barbarian asteroids**  
DEVOGELE M., TANGA P., BENDJOYA P., RIVET J. P., SURDEJ J., HANUS J., ABE L., ANTONINI P., ARTOLA R. A., AUDEJEAN M., et al.  
ASTRONOMY & ASTROPHYSICS, vol.607, 2017 (SCI-Expanded)
9. **Dynamical analyses on the transitivity from JFC and Centaur regions to NEAs with Tisserand parameters from 2 to 3**  
KAPLAN M., ERECE O., ASLAN G., EKER Z.  
ADVANCES IN SPACE RESEARCH, vol.58, no.11, pp.2407-2415, 2016 (SCI-Expanded)

10. **A-Track: A new approach for detection of moving objects in FITS images**  
Atay T., KAPLAN M., Kilic Y., Karapinar N.  
COMPUTER PHYSICS COMMUNICATIONS, vol.207, pp.524-530, 2016 (SCI-Expanded)
11. **ROTATIONAL PROPERTIES OF THE MARIA ASTEROID FAMILY**  
KIM M. -, CHOI Y. -, MOON H. -, BYUN Y. -, Brosch N., KAPLAN M., KAYNAR S., UYSAL Ö., Guzel E., BEHREND R., et al.  
ASTRONOMICAL JOURNAL, vol.147, no.3, 2014 (SCI-Expanded)
12. **Optical observations of NEA 162173 (1999 JU3) during the 2011-2012 apparition**  
KIM M., CHOI Y., MOON H., ISHIGURO M., MOTTOLA S., KAPLAN M., KURODA D., Warjurkar D. S., Takahashi J., BYUN Y.  
ASTRONOMY & ASTROPHYSICS, vol.550, 2013 (SCI-Expanded)
13. **Interactions between brown-dwarf binaries and Sun-like stars**  
KAPLAN M., STAMATELLOS D., Whitworth A. P.  
ASTROPHYSICS AND SPACE SCIENCE, vol.341, no.2, pp.395-403, 2012 (SCI-Expanded)
14. **A Dynamic Era-Based Time-Symmetric Block Time-Step Algorithm with Parallel Implementations**  
KAPLAN M., Saygin H.  
PUBLICATIONS OF THE ASTRONOMICAL SOCIETY OF JAPAN, vol.64, no.3, 2012 (SCI-Expanded)
15. **A time-symmetric block time-step algorithm for N-body simulations**  
Makino J., HUT P., KAPLAN M., SAYGIN H.  
NEW ASTRONOMY, vol.12, no.2, pp.124-133, 2006 (SCI-Expanded)
16. **A recursive algorithm for finding HDMR terms for sensitivity analysis**  
KAYA H., KAPLAN M., SAYGIN H.  
COMPUTER PHYSICS COMMUNICATIONS, vol.158, no.2, pp.106-112, 2004 (SCI-Expanded)

#### Articles Published in Other Journals

1. **On the Lyapunov Time Estimations For Comet 1/P Halley**  
KAPLAN M.  
Cumhuriyet Science Journal, vol.43, no.1, pp.116-122, 2022 (Peer-Reviewed Journal)
2. **Çok cisim İntegrasyonunda Zaman simetrik Ayrık Blok Zaman Adımlı Algoritma**  
KAPLAN M., SAYGIN H.  
İTÜ Dergisi Seri D: Mühendislik, vol.9, no.5, pp.57-67, 2010 (Peer-Reviewed Journal)

#### Refereed Congress / Symposium Publications in Proceedings

1. **Güneş Sistemi'ndeki Küçük Cisimlerin Dinamiği**  
Kaplan M.  
GEZEGENLERİN İÇ YAPISI VE EVRİMİ (GİYE), İzmir, Turkey, 29 - 30 November 2023, pp.1-2
2. **Observation Campaign of (99942) Apophis in the 2021 Apparition**  
Lee H., Kim M., Lee Y., Marciniak A., Urakawa S., Kim D., Moon H., Choi Y., Kuroda D., Okumura S., et al.  
Apophis T-7 Years: Knowledge Opportunities for the Science of Planetary Defense, Berlin, Germany, 11 - 12 May 2022, pp.1-2
3. **OccultPortal: a web-based platform for data collection and analysis of stellar occultations**  
Kılıç Y., Braga-Ribas, F., KAPLAN M.  
European Symposium on Occultation Projects, Freiburg, Germany, 29 - 30 August 2020, pp.20
4. **The Non-Principal Axis rotation of (5247) Krylov**  
Lee H., Durech J., Kim M., Moon H., Kim C., Choi Y., Galád A., Pray D., Marciniak A., KAPLAN M., et al.  
EPSC-DPS Joint Meeting, Geneva, Switzerland, 15 - 20 September 2019
5. **A-Track: a Tool for Detecting Moving Objects from Astronomical Images**  
Kılıç Y., KAPLAN M., Erece O.

Dynamics and Physics of Asteroids, TNOs and Natural Satellites in the New Era of Gaia Data, Antalya, Turkey, 4 - 06 September 2019

6. **Performance of Akdeniz University Telescopes**  
BAKIŞ V., IVANTSOV A., EKER Z., KAPLAN M., Yücel G., Aslan G., Dartıcı M. F.  
Dynamics and Physics of Asteroids, TNOs and Natural Satellites in the New Era of Gaia Data, Antalya, Turkey, 4 - 06 September 2019
7. **The Photometric Study of Mars Crosser 2078 Nanking**  
Kim D., Choi J., Kim M., Lee H., Ďurech J., Marciniak A., Kaminski K., KAPLAN M., Erece O., Moon H., et al.  
Binary Asteroids 5, Fort Collins, United States Of America, 3 - 05 September 2019
8. **Spin State of (5247) Krylov**  
Lee H., Ďurech J., Kim C., Galad A., Pray D., KAPLAN M., Marciniak A., Duffard R., Kornos L., Gajdoš S., et al.  
American Astronomical Society, DPS meeting #50, Tennessee, United States Of America, 21 - 26 October 2018, pp.414
9. **Dynamical Analyses for Asteroid 2018 AN2: A new candidate for Earth Co-orbitals**  
KAPLAN M., Cengiz S.  
Turkish Physical Society 34th International Physics Congress – TPS34, Muğla, Turkey, 5 - 09 September 2018, pp.100
10. **First Astrometric Observations of Near-Earth Asteroids at the UBT60 Telescope of Akdeniz University**  
IVANTSOV A., KAPLAN M., BAKIŞ V., EKER Z., TUNÇ E., ASLAN G.  
Türk Fizik Derneği 34. Uluslararası Fizik Kongresi, Muğla, Turkey, 5 - 09 September 2018, pp.204
11. **A new pipeline for astrometry and photometry of asteroids**  
Kılıç Y., KAPLAN M., Eker Z.  
IAU Focus Meetings (GA) A Century of Asteroid Families, Vienna, Austria, 28 - 29 August 2018, pp.100
12. **Astrometry with A-Track Using Gaia DR1 Catalogue**  
Kilic Y., Erece O., KAPLAN M.  
330th Symposium of the International-Astronomical-Union (IAU), Nice, France, 24 - 28 April 2017, vol.12, pp.94-95
13. **The international astrometric network for astrodynamical studies of asteroids: asteroid mass determination and physical properties of PHAs**  
Ivantsov A., Eggl S., Hestroffer, D., Eker Z., Kaplan M., Erece O., Godunova V., Simon A., Vasylenko V.  
Astrometry/photometry of Solar System objects after Gaia, Paris, France, 14 - 18 October 2015
14. **Astrometry and Photometry in Sky Areas of Karin Asteroids Family Members**  
EKER Z., Birlan M., KAPLAN M., Erece O., Aslan G., Popescu M., Nedelcu M. ..  
GAIA Follow-Up Network for the Solar System Objects, Paris, France, 24 - 26 November 2014, vol.3, pp.81-84
15. **Photometric observations of the Baptistina asteroid family**  
Kim M., Choi Y., Moon H., ERECE O., Ries J. G., Kaynar S., KAPLAN M., EKER Z.  
The Korean Astronomical Society (KAS) Semi Annual, South Korea, 10 April 2015
16. **Turkish Facilities to Meet GAIA Solar System ToO Observations**  
Erece O., Eker Z., Kaplan M., Aslan G. E., Birlan M.  
Gaia-FUN-SSO-3 2014, Paris, France, 24 - 26 November 2014, pp.110
17. **Observational Properties Of 1999 Ju3 - Hayabusa 2 Mission Primary Target**  
Kim M., Moon H., Mottola S., Kaplan M., Ishiguro M., Kroda D., Warjurkar D., Takahashi J., Byun Y.  
American Astronomical Society, DPS meeting #44, #110.03, Nevada, United States Of America, 14 - 19 October 2012, pp.1-15
18. **Astrometric Observations of (1665) Gaby, and (1565) Lemaître Asteroids at Tubitak National Observatory (TUG)**  
Uysal Ö., HELVACI M., IVANTSOV A., EKER Z., KAPLAN M., Özışık T., Kaynar S.  
GAIA-FUN-SSO 2012 Second "Gaia Follow-up Network for Solar System Objects" Workshop, Paris, France, 19 - 21 September 2012
19. **Astrometric Observations of Some MBAs and NEAs at TUG and Observational Facilities of Akdeniz University**

Kaynar S., EKER Z., HELVACI M., KAPLAN M.

GAIA-FUN-SSO 2012 Second "Gaia Follow-up Network for Solar System Objects" Workshop, Paris, France, 19 - 21 September 2012

20. **The Dynamics of Brown Dwarf Binaries**

WHITWORTH A., KAPLAN M.

International Conference on the Origin of Stellar Masses, Spain, 1 - 04 December 2010, pp.1-10

21. **The formation of brown dwarfs**

Whitworth A., STAMATELLOS D., Walch S., Kaplan M., Goodwin S., Hubber D., Parker R.

266th Symposium of the International-Astronomical-Union, Rio de Janeiro, Brazil, 10 - 14 August 2009, pp.264-265

22. **The survival of BD/BD binaries in a fractal star cluster**

KAPLAN M., WHITWORTH A.

Conference on Brown Dwarf Formation, Netherlands, 1 - 04 October 2009, pp.1-10

23. **Hermite integrations with TSBTS algorithm for N-body Problems**

KAPLAN M., SAYGIN H.

7th WSEAS Int Conference on Microelectron, Nanoelectron, Optoelectron/1st WSEAS Int Conference on Multivariate Anal and Its Applicat in Sci and Engr, Turkey, 1 - 04 October 2008, pp.174-178

24. **A Recursive Algorithm for Finding HDMR Terms for Sensitivity Analysis**

Kaya H., KAPLAN M., SAYGIN H.

Computational Methods in Sciences and Engineering, Kastoria, Greece, 12 September 2003

25. **Zamandan Bağımsız Schrödinger Denkleminin Çözümünde Çarpımsallaştırılmış Yüksek Boyutlu Model Gösterilim**

SAYGIN H., KAPLAN M., DEMİRALP M.

XII. Ulusal Mekanik Kongresi, Konya, Turkey, 1 - 04 October 2001, pp.380-386

## Courses

Yörünge Mekaniğinde Hesaplamalı Teknikler, Postgraduate, 2023 - 2024, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019

Introduction to Radio Astronomy, Undergraduate, 2023 - 2024

Güneş Sistemi Dinamiği I, Postgraduate, 2023 - 2024, 2022 - 2023

Bilgisayar Programlama I, Undergraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019

Astrometri, Undergraduate, 2023 - 2024, 2022 - 2023, 2020 - 2021, 2019 - 2020

İstatistiksel Yörünge Tayini, Doctorate, 2023 - 2024, 2021 - 2022

Yörünge Mekaniği, Undergraduate, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017

Güneş Sisteminde Konum Ölçümü, Postgraduate, 2022 - 2023, 2021 - 2022, 2020 - 2021

Uzay Bilimlerinde Hesaplamalı Teknikler, Postgraduate, 2015 - 2016, 2012 - 2013

## Advising Theses

Kaplan M., Güneş Sistemi Nesnelere Yıldız Örtülme Tekniği İle İncelenmesi, Doctorate, Y.KILIÇ(Student), 2023

Kaplan M.,  $H < 18^m$  olan yer'e yakın asteroidlerin fiziksel ve dinamik özelliklerinin araştırılması ve (2059) babaquivarı asteroidinin analizi, Doctorate, O.ERECE(Student), 2023

KAPLAN M., Yer İle Eş-Yörüngelerdeki Asteroidlerin Yörünge Dinamiklerinin İncelenmesi, Postgraduate, S.Cengiz(Student), 2019

KAPLAN M., Aynı Bölgeye Ait Ardışık Gökyüzü Görüntülerindeki Hareketli Cisimlerin Doğru Tanıma Yöntemi İle Otomatik Tespiti, Postgraduate, N.Karapınar(Student), 2017

KAPLAN M., Apollo Asteroidlerine Kaynaklık Eden Bölgelerin Araştırılması, Postgraduate, O.Erece(Student), 2016

## Memberships / Tasks in Scientific Organizations

International Astronomical Union (IAU), Member, 2020 - Continues

European Astronomical Society (EAS), Member, 2019 - Continues

Türk Astronomi Derneği, Member, 2018 - Continues

## Mobility Activity

Research Scholarship Program, Research During Graduate Education, Institute for Advanced Study Princeton, United States Of America, 2004 - 2004

## Metrics

Publication: 45

Citation (WoS): 96

Citation (Scopus): 97

H-Index (WoS): 7

H-Index (Scopus): 6

## Congress and Symposium Activities

American Astronomical Society, DPS meeting #50, Attendee, Tennessee, United States Of America, 2018

Turkish Physical Society 34th International Physics Congress – TPS34, Attendee, Muğla, Turkey, 2018

IAU Focus Meetings: A Century of Asteroid Families, Attendee, Vienna, Austria, 2018

20. Ulusal Astronomi Kongresi, Attendee, Erzurum, Turkey, 2016

Gaia-FUN-SSO-3 2014, Attendee, Paris, France, 2014

Observational astronomy using remote techniques: CODAM-10, Attendee, Paris, France, 2013

American Astronomical Society / Division for Planetary Sciences Meeting, Attendee, Texas, United States Of America, 2012

GAIA-FUN-SSO 2012: Second Gaia Follow-up Network for Solar System Objects, Attendee, Paris, France, 2012

International Conference on the Origin of Stellar Masses, Attendee, Tenerife, Spain, 2010

Conference on Brown Dwarf Formation, Attendee, Noordwijk, Netherlands, 2009

IAU Symposium 2009, Attendee, Brazil, 2009

International Conference on Multivariate Analysis and its Application in Science and Engineering (MAASE '08), Attendee, İstanbul, Turkey, 2008

International Conference of Computational Methods in Sciences and Engineering (ICCMSE 2003), Attendee, Kastoria, Greece, 2003

Akademik Bilişim, Attendee, Adana, Turkey, 2003

XII Ulusal Mekanik Kongresi, Attendee, Konya, Turkey, 2001

International Conference of Mathematical Modelling and Scientific Computing, Attendee, Ankara, Turkey, 2001

## Research Areas

Physics, Astronomy and Astrophysics, Astronomy and Astrophysics: Instrumentation Techniques and Observations, Natural Sciences