October 2025

Doris Arzoumanian

Astrophysics – Filament paradigm for star formation – Observations / Data analysis / Theory

Personal Details

Family name, First name	Arzoumanian, Doris
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Research Positions and Quanlifications

- Current Position

  Since 2025 - Associate Professor, Inamori Frontier Program, The Institute for Advanced Study, Kyushu University, Japan.

- Previous Research Positions

  2022 – 2025 - Faculty, The Graduate University for Advanced Studies (SOKENDAI), **Japan**.
  2021 – 2025 - Project Assistant Professor (NAOJ fellow), National Astronomical Observatory of Japan (NAOJ), **Japan**.
  2020 – 2021 - Post-doctoral researcher, Laboratoire d'Astrophysique de Marseille (LAM), **France**.
  2019 – 2020 - Post-doctoral researcher, Instituto de Astrofísica e Ciências do Espaço, IA Porto - **Portugal**.
  2016 – 2018 - International Research Fellow of the Japan Society for the Promotion of Science (JSPS), Nagoya University, "Laboratory for Theoretical Astrophysics" - **Japan**.
  2013 – 2015 - Post-doctoral researcher, Institut d'Astrophysique Spatiale (IAS), Orsay - **France**.

- Education and key qualifications

  November 2012 - **PhD, Astrophysics**, Université Paris-Diderot (Paris VII), France.
  Research conducted at CEA/AIM, Paris-Saclay. Supervisor: Philippe André
  Thesis title: *Characterizing interstellar filaments as revealed by the Herschel Gould Belt survey: Insights into the initial conditions for star formation.*
  Main publications: - Arzoumanian, André et al., 2013, A&A, 553, A119
  - Arzoumanian and the HGBS collaboration, 2011, A&A, 529, L6

  July 2009 - **Master, Astrophysics**, Université Pierre et Marie Curie (Paris VI), France.
  Thesis project conducted at the University of St Andrews, UK. Advisor: Moira Jardin.
  Thesis title: *Coronal structure of AB Doradus and V374 Pegasi, X-ray and radio emissions*.
  Main publication: Arzoumanian, Jardin et al., 2011, MNRAS, 410, 2472

  June 2007 - **Bachelor's degree in physics**, Université Joseph Fourier, Grenoble.

  June 2004 - High School Certificates (French and Lebanese Baccalaureate), Arslanian Djemaran, Lebanon.

Research Achievements

Since my first peer-reviewed article in 2011, I have gradually achieved international recognition as an expert in the analysis of the properties of filaments and their role in the star formation process (I organized a conference in 2018 on "filaments and star formation"). With the choice of my first postdoc, working on the *Planck* polarization data, I became recognized as an expert in the analysis of the magnetic fields of star forming regions (I organized a conference on "magnetic fields" in March 2024). I continued to expand my skills with my close collaborations with theorists (since 2016) building robust theoretical understanding of my observational data.

- Expertise and selected publications

  Bibliometry (source: ADS)
  First authored publications: 16 with 9 refereed (> 1250 **citations**) and 7 conference proceedings
  Total publications: 123 with 107 refereed (> 10600 citations) and 23 conference proceedings
  Review chapter: 1, Protostars and Planet VII Book 2023

I. Dust continuum observations (*Herschel* Space Observatory) - *Column density and temperature of filaments.*
My main finding derived from the statistical analysis of a large sample of filaments revealed that **filaments are characterized by a narrow distribution of central widths of** ~ 0.1 **pc** regardless of their length and central density. In 2019, I confirmed the result (initially found in 2011 during my PhD) on a larger filament sample and with extensive tests on mock data to assess the robustness of the analysis and results.
1 - Arzoumanian, André, Didelon & 21 co-authors as part of the *Herschel* Gould Belt SAG 3 collaboration. *"Characterizing interstellar filaments with Herschel in IC 5146"*, **2011, A&A,** 529, L6 (link) – Citations: >**650**.
2 - Arzoumanian, André, Könyves, Palmeirim & 7 co-authors. *"Characterizing the properties of nearby molecular filaments observed with Herschel"*, **2019, A&A,** 621, A42 (link) – Citations: >**184**.

II. Molecular line spectroscopic observations (radio telescopes: IRAM 30m, NRO 45m, APEX) - *kinematics and dynamics.*
I analyzed molecular line spectroscopic 3-dimensional (D) data cubes (position-position-velocity) showing how filaments form in 2D gas layers compressed by expanding bubbles (generated by supernova explosions from massive stars). Filaments grow from anisotropic matter accretion within the compressed layers and along the magnetic field lines. Then, longitudinal motions induce gravitational fragmentation producing the seeds of future stars. From the velocity structure towards a hub-filament system, I identify large scale compressions, suggesting the importance of jointly studying the assembly and evolution/fragmentation.
3 - Arzoumanian, André, Peretto, Könyves. *"Formation and evolution of interstellar filaments. Hints from velocity dispersion measurements"*, **2013, A&A,** 553, A119 (link) – Citations to: >**149**.
4 - Arzoumanian, Shimajiri, Inutsuka, Inoue, Tachihara. *"Molecular filament formation and filament-cloud interaction: Hints from NRO 45 m telescope observations"*, **2018, PASJ,** 70, 5, 96 (link) – Citations: >**50**.
5 - Arzoumanian, Russeil, Zavagno, 8 co-authors *"Velocity structure of the 50 pc-long NGC 6334 filamentary cloud: Hints of multiple compressions and their impact on the cloud properties?"*, **2022**, **A&A**, 660, A56 (link) – Citations: >**25**

III. Dust polarized emission observations (*Planck* Space telescope, JCMT) - *Magnetic field structure.*
To trace magnetic fields, I analyzed polarization observations and showed how magnetic fields help channelling matter onto the filaments and stabilizing them against the collapse, which would inhibit the formation of stars. I also showed how magnetic fields parallel to filaments may be pulled by the gravity of the hub. The consequence on the hub evolution is not understood and I am planning to explore it in my future research.
6 - Arzoumanian as lead author, Planck Collaboration. *"Planck inter. results. XXXIII. Signature of the magnetic field geometry of interstellar filaments in dust polarization maps"*, **2016**, A&A, 586, A136 (link)– Citations: >**90**.
7 - Arzoumanian, Furuya, Hasegawa, Tahani and the BISTRO collaboration. *"Dust polarized emission observations of NGC 6334: BISTRO reveals the details of the complex but organized magnetic field structure of the high-mass star forming hub-filament network"*, **2021**, A&A, 647, A78 (link) – Citations: >**80**.

IV. Unifying low and high-mass star formation in hub-filament systems
Until 2019, I worked mostly on regions forming Sun-like stars. To extend my knowledge to high-mass star formation, I moved to Porto to collaborate with Dr. Kumar. This collaboration led to the two papers below (#8 & #9) proposing the "Filaments to clusters" paradigm unifying low- and high-mass star formation. I was the main driver of this work, promoting the collaborations with my theorist colleague from Japan (Prof. Inutsuka), guiding the analysis of the observational data, providing the tools, and leading the interpretation of the results.
8 - Kumar, Palmeirim, **Arzoumanian**, Inutsuka *"Unifying low and high mass star formation through density amplified hubs of filaments"*, **2020, A&A,** 642, A87 (link) – Citations: >**120**.
9 - Kumar, **Arzoumanian**, & 4 co-authors. *"Filament coalescence and hub structure in MonR2: Implications to massive star and cluster formation"*, **2022, A&A,** 658, A114 (link) – Citations: >**40**.

V. Sun birth environment in the context of star formation in hub-filament systems
As planets form during the birth of stars, the origin of the Earth is linked to the formation of the Sun. I propose to bridge the gap between the solar system studies and our current understanding of star formation, suggesting that the Sun, like most stars, formed along a filament connected to a hub. I assembled a team of theorists and observers with expertise in star/planet formation and solar system properties for this interdisciplinary project.
10 - Arzoumanian, Arakawa, Kobayashi, Iwasaki, Fukuda, Mori, Hirai, Kunitomo, Kumar, Kokubo. *"Insights on the Sun Birth Environment in the Context of Star Formation in Hub-Filaments"*, **2023**, **ApJL**, 947, L29 (link) – Citations: **10**.

VI. Comparison of observations with theoretical models and numerical simulations
In parallel to the analysis of the observations, **I work with theorists** and compare their magnetohydrodynamic simulations with my observational results to derive physically motivated interpretations. In the above papers #4, #7, and #10, I compared my observations with the simulations by deriving observational-like synthetic maps. In paper #7, I proposed a new method to estimate the magnetic strength from the slope of the power spectra of the angle fluctuation calibrated with the simulations. I co-supervised the theoretical project of a PhD student who is now a postdoc (Misugi, Inutsuka, Arzoumanian **2019, 2023, 2024**).

VII. Review chapter summarizing our current view of the star formation process
I presented this chapter on behalf of the team during the "Protostars and Planets VII" conference, April 2023.
11 - Pineda, **Arzoumanian**, & 9 co-authors. *"From Bubbles and Filaments to Cores and Disks: Gas Gathering and Growth of Structure Leading to the Formation of Stellar Systems"*, Review chapter in the Protostars and Planets VII Book, **2023** (link) – **Citations:** >**170**.

• Observational projects with ground-based and space telescopes

During my research years, I developed an expertise in the analysis of observational data from space and ground-based telescopes, in the far-IR, sub-millimeter, and radio wavelengths, in both continuum (total and polarized intensity) and molecular line emission (velocity data cubes). I have obtained time as PI on all these telescopes (with an average success rate of 80% of the submitted proposals), the data of which will be used for my current and future planned research projects.

Telescopes	Awarded observing time and Observing Sessions
JWST	Mid-IR observations with MIRI (Cycle 1 General Observers). Co-I of 1 accepted proposal to map in absorption six Galactic infrared dark filaments.
ALMA interferometer (Chile)	Imaging and spectroscopy with both the 12m and the 7m arrays. **4 accepted PI proposals** (2018 - 2021) with a total of **108 hours**, with 1 accepted PI proposal **in full polarization for Zeeman measurements.** Co-I of 7 accepted projects since 2013.
JCMT-15m single dish (Hawaii)	Polarization observations with SCUBA2/POL2. **2 accepted PI proposal** (2019) with a total of **60 hours**. Co-I of 5 accepted projects since 2019. **Regional coordinator of the SURFING** large program since 2021. Active member of the **BISTRO 1, 2, and 3** large programs since 2016. 2 observing runs of 1 week each (2017, 2018) at the summit of Maunakea, US.
APEX-12m single dish (Chile)	Imaging and spectroscopy with ArTéMiS and SHeFI. **1 accepted PI proposal** (2022) with ArTéMiS of **20 hours**. Co-I of 1 accepted proposal with CONCERTO (instrument PI: G. Lagache, LAM) Member of the **CAFFEINE** large program with ArTéMiS since 2017.
KVN-21m single dish (Korea)	Molecular line full polarization observations. **1 accepted PI proposal** (2023) of **130 hours**.
Nobeyama-45m single dish (Japan)	Molecular line spectroscopy with FOREST/SAM45. **1 accepted PI proposal** (2016) with a total of **78 hours**. Co-I of several projects since 2014, including the CIRCUS large program (PI: Y. Shimajiri). 2 observing runs of 1 week and 3 days each (2017, 2021) at Nobeyama, Japan.
IRAM-30m single dish (Spain)	Molecular line spectroscopy with HERA & EMIR. **4 accepted PI proposals** (2013, 2015) with a total of **200 hours**. 5 runs of 1 week each (2010 - 2015) at the Pico Veleta, Spain.
Parkes-64m single dish (Australia)	Spectroscopy with the H-OH receiver for Zeeman measurements. Co-I of an ongoing project since 2013 with a total of **122 hours**.
Planck Space Telescope	Imaging the Galactic total and polarized cold dust thermal emission with the HFI. Member of the Planck collaboration (2013 - 2015).
Herschel Space Observatory	Imaging the Galactic cold dust thermal emission with PACS & SPIRE. Member of the HGBS key program (SPIRE SAG3 consortium) since 2009. Member of the HOBYS key program (SPIRE SAG3 consortium) since 2009.
Yebes-40m single dish (Spain)	Molecular line spectroscopy. **2 accepted proposals** (2020) with a total of **50 hours**. The plan was to use this observing time to train students from the University of Lisbon in collaboration with João L. Yun (canceled due to the Covid-19 pandemic).
NTT-3.58m telescope (Chile)	JHK photometry of ultra-cool brown dwarfs and high redshift quasars with SOFI. 3 runs of 1 week each (2008 - 2010) in La Silla, Chile. Observations as part of the Canada-France Brown Dwarfs Survey-InfraRed.

• Ground-breaking research and interdisciplinarity

- Creative independent thinking: I have developed innovative approaches in the field of star formation, in particular, in the analysis of the density structure of filaments (since 2011), the magnetic field structure of filaments and clouds (since 2016), the comparison of observations and simulations (since 2018), and the solar system properties (2023). I contributed to the elaboration of the new "Filaments to clusters" paradigm of star-cluster formation (papers #8 & #9).

- Multi-method research approach: Since my PhD (2009 - 2012), my research activity has relied on the joint analysis of observations (using various telescopes and techniques) tracing the density, velocity, and magnetic field structures, and a strong coupling of observational and theoretical approaches. These skills are all necessary for the success of my proposed projects.

- Bridging several research fields: During my PhD, I adapted the `DisPerSE` algorithm developed to trace filaments in the cosmic web, to identify filaments in molecular clouds (paper #1). `DisPerSE` is now widely used by the star formation community. In 2022, I started collaborating with geologists working on the solar system properties leading to our first publication (paper #10). In 2023, I started collaborating with experts on stellar evolution that led to the organization of the conference "Magnetic fields from clouds to stars". These collaborations demonstrate my **scientific adaptability** and my ability to quickly transition between fields.

- Initiating new collaborations: I have obtained a Japan-Germany joint research grant to start a new collaboration with astrochemists (at MPE) and I have submitted another Japan-UK joint research grant (with a colleague at Cardiff University).

- Frequent international mobility: I held postdoc positions in France, Japan, and Portugal. I successfully integrated the host institutes creating new scientific collaborations, which are all still ongoing.

- Management and organizational skills: I have proven these skills by leading interdisciplinary projects, organizing conferences (chair of 2 international conferences), and creating and leading the international "Filament working group".

- Scientific leadership

2023	Creating agreements (MoU) between NAOJ/Japan and Cardiff and Aix-Marseille Universities.
Since 2023	**Initiated and led the "Filament Working Group"** (FWG). An international working group of 50 researchers aiming at understanding the role of filaments in star formation.
Since 2021	Co-leading "*Nobeyama 45m survey of GalaCtIc moleculaR CloUdS from low to high densities*" the CIRCUS large observational program with the **Nobeyama 45m** telescope, Japan.
Since 2021	Regional coordinator of "SURFING: *SURveying Filaments In Nearby Gas clouds*", a large program with the **JCMT/'$\overline{U}$'$\overline{u}$**, Hawaii.

- Selected international collaborations

Since 2023	Member of the **AtLAST** "Our Galaxy" Working Group.
Since 2020	Member of the **SKA** "Magnetism" and "Our Galaxy" Working Groups.
2019 – 2020	Core member of the star formation Science Working Groups of the **SPICA** space mission. Co-led the science case: *"Large scale mapping of the Galactic interstellar medium with SPICA"*.
Since 2017	Member of "*CAFFEINE: Core And Filament Formation/Evolution In Natal Environments*", a large program with **APEX/ArTéMiS**, Chile.
Since 2016	Member of "BISTRO: *B-fields In STar forming RegiOns*", 3 large programs with **JCMT/POL2**.
2013 – 2015	Member of the *Planck* Collaboration.
Since 2009	Member of the *Herschel* Gould Belt Survey and HOBYS (SPIRE SAG3) consortia.

- Mentoring of students and postdocs

October 2025 – now	Co-supervising the **PhD thesis** of A. Asthana at NAOJ, Japan.
May 2025 – now	Supervising J. Hwang, a **postdoc** at Kyushu University, Japan.
March 2024 – now	Co-supervising K. Mallick, a **postdoc** at NAOJ, Japan.
Since 2021	Supervising the internship of **3 Master's** and **1 undergraduate** students in France and Japan.
2017 – 2022	Co-supervising the **Master's and PhD** theoretical projects of Y. Misugi at Nagoya Univ., **Japan**. Main supervisor: S.-i. Inutsuka. He defended his PhD on Feb. 8, 2022. He is now an assistant professor.

- Selected teaching and outreach activities

Lectures

May 2024	*"Interstellar medium and star formation"* SOKENDAI/NAOJ student admission guidance.
Apr 2021	On the *"Structure of the ISM and star formation"* as part of the IAU-OAD AstroSprint (video).
Dec 2019	In the school of the Porto prison. Subject: *Introduction to research in astrophysics.*
Jul 2017	At the *Takamatsu Sakurai High School* (Kagawa-Ken, Japan). Subject: *Why do I like science?*

Organizing outreach activities

May 2021	A series of public talks entitled Noojoom (stars in Arabic) broadcasted live on Youtube (video). With this event we collect funds to provide science books to school children in Beirut, Lebanon.
Nov 2018	The outreach movie *"An Encounter with Astronomers"* shot during the filament conference, Nagoya University, Japan. The movie link (40 min).

Invited to participate in outreach activities

Mar 2021	Celebrating women's day (March 8, 2021): A talk with the Lebanese women in astronomy.
Jun 2020	Celebrating 20 years of Portugal in ESO (video).
Feb 2014	Astronomy related activities in prisons with "Champ Libre" (a non-profit organization), France.

Peer recognition

- Competitive fellowships (2)

Since 2021	NAOJ Fellowship at the National Astronomical Observatory of Japan (5 years).
2016 – 2018	International Research Fellow of the Japan Society for the Promotion of Science (24 months).

- Organization of international conferences (4)

Mar 2024	**Chair**, *Magnetic fields from Clouds to Stars*, NAOJ, Japan (Bfields2024).
May 2021	Member of the Scientific Organizing Committee (SOC) of the international conference, *Structure, characteristic scales, and star formation*, Beirut, Lebanon (virtual), (ISM2021).
Jun 2019	**SOC**, *Zooming in on star formation*, Nafplio, Greece (starform2019).
Nov 2018	**Co-chair**, *Interstellar filament paradigm: Formation, evolution, and role in star formation* Nagoya University, Japan, 97 participants, 48 oral talks, 39 posters (filament2018).

- Institutional responsibilities

2024	Representative of non-permanent staff of the Science Division at NAOJ.
2023	Member of the organizing committee of the seminars of the Science Division at NAOJ.
2022	Organization of the annual 2-day workshop of the members of the Science Division at NAOJ.

Commissions of trust

2023	Peer review for STFC research grants (UK) as an expert in the star formation research field.
2022 - 2025	Member of 3 PhD thesis committees in Japan and France.
Since 2019	External referee for observational proposals for the ALMA and JCMT telescopes.
Since 2013	Peer review for astrophysical journals ApJ, A&A, MNRAS, PASJ, and Frontiers in Physics.

Grants and Fundings (9)

Research grants

2025	NAOJ grant for new faculties in Japanese universities (0.9 million JPY).
2024	NAOJ Visiting Joint Research Grant - One month invitation of a PhD student from France to NAOJ (0.4 million JPY).
2024 – 2026	NINS-DAAD (Japan-Germany) joint international research grant (0.7 million JPY).
2023	NAOJ Visiting Joint Research Grant - One month invitation of a colleague from the US to NAOJ (0.4 million JPY).
2016 – 2018	Young researcher JSPS research grant, Japan (1.2 million JPY).
2009 – 2012	PhD research grant from the French National Centre for Scientific Research (CNRS).

Educational grants

2023	SOKENDAI University Support for the Establishment of International Joint Degree Programs, with Cardiff University (0.6 million JPY) and Aix-Marseille University (0.6 million JPY).

International conference organization fundings

2023	Foundation for Promotion of Astronomy (0.5 million JPY) and Inoue Zaidan funds (0.7 million JPY), Japan.
2023	Division of Science (NAOJ) funds for conference organization, Japan (0.7 million JPY).
2018	Conference organization funding from NAOJ (1 million JPY) and Nagoya University, Japan (1 million JPY).

Outreach

2018	Outreach funding from "SECOM Science and Technology Foundation", Japan (1 million JPY).

Invited presentations in conferences (11)

Aug 2025	*Star Formation in Different Environments*, Quy Nhon, Vietnam (**International**).
Jul 2025	*JCMT users meeting*, Chian Mai, Thailand (**International**).
Apr 2023	*Protostars and Planets VII*, Kyoto, Japan (**International**).
Jul 2021	*Cosmic Star Formation*, review talk on "Local Star Formation", Bath, UK (**International**).
Jul 2021	*Puzzles of Star Formation*, Ringberg Castle, Germany (**International**).
May 2018	*Cloud-cloud Collision and Star Formation*, Nagoya University, Japan (National).
Dec 2017	*Role of Magnetic Fields in Star Formation*, Kagoshima University, Japan (National).
Nov 2017	*Science with SPICA*, ISIS/JAXA, Japan (National).
Aug 2017	*NRO45m/ASTE Single Dish Science Workshop*, Nobeyama, Japan (National).
Jul 2016	*Star Formation in Different Environments*, Quy Nhon, Vietnam (**International**).
Aug 2015	*XXIX IAU General Assembly, IAU symposium 315*, Honolulu, Hawaii (**International**).

Contributed oral presentations in conferences (20)

Sep 2025	"Probing the ion-neutral drift velocity in L1544", Fall ASJ annual meeting, Shimonoseki, Japan
Mar 2023	"On the Sun Birth environment", Spring ASJ annual meeting, Tokyo, Japan
Dec 2022	"The role of hub-filament systems in the formation of low- to high-mass stars", Miyakojima, Japan
Mar 2021	"The complex B-field structure of the NGC 6334 hub-filament system", Hiroshima (virtual)
Jun 2019	"Filament and sheet-like-cloud interaction", Zooming in on Star Formation, Nafplio, Greece
Mar 2018	"Understanding the properties of interstellar filaments", Spring ASJ annual meeting, Chiba, Japan
Sep 2017	"Observed properties of interstellar filaments", Autumn annual meeting, Hokkaido, Japan
Jul 2017	"Observed properties of interstellar filaments in nearby clouds", APRIM 2017, Taipei, Taiwan
Jun 2016	"EPoS: The Early Phase of Star Formation", Ringberg Castle, Germany
Apr 2015	"Signature of the magnetic field geometry derived from Planck observations", Toulouse, France
Mar 2015	"Signature of the magnetic field geometry derived from Planck observations", Munich, Germany
Dec2014	"Planck 2014: The microwave sky in temperature and polarization", Ferrara, Italy
Nov 2014	"Dust polarization observations towards interstellar filaments as seen by Planck", Star Formation across Space & Time, ESTEC, The Netherland
Sep 2014	"Polarization observations towards interstellar filaments as seen by Planck", GESF, Marseille, France
May 2014	"Modeling the 3D magnetic field structure inspired by Planck", OSSF14, Katerini, Greece
Oct 2013	"Modeling 3D magnetic field structures inspired by Planck", Garching, Germany
Jun 2013	"Properties of filaments observed with Herschel", SF2A, Montpellier, France
Jun 2012	"Characterizing the properties of interstellar filaments with Herschel", The Labyrinth of Star Formation, Chania, Greece
Mar 2012	"Characterizing the properties of interstellar filaments with Herschel", From atomes to Pebbles, Grenoble, France
Sep 2011	"Characterizing the properties of interstellar filaments with Herschel", The Milky Way In The *Herschel* Era, Rome, Italy

- Press releases (6)

2023 AAS Nova, USA (link) and NAOJ, Japan (link)
2022 The Astronomical Herald, Japan (link).
2020 AGBU Insider, May 2020, New York – Women in Stem (link).
2011 ESA Science & Technology, April 2011 (link), Astronomy Picture of the Day (link).

List of publications

- First-authored refereed publications (9) – Number of citations: >1260

9 - "Insights on the Sun birth environment in the context of star-cluster formation in hub-filament systems",
2023, ApJL, 947, L29 (link) – Citations to the Article: **10**
Arzoumanian, D.; Arakawa, S.; Kobayashi, M.; Iwasaki, K.; Fukuda, K.; Mori, S.; Hirai, Y.; Kunitomo, M.; Kumar, N.; Kokubo, E.

8 - "Velocity structure of the 50 pc-long NGC 6334 filamentary cloud: Hints of multiple compressions and their impact on the cloud properties?",
2022, A&A, 660, A56 (link) – Citations to the Article: >**25**
Arzoumanian, D., Russeil, D.; Zavagno, A., Chen, M.; André, Ph.; Inutsuka, S.-i; Misugi, Y.; Sánchez-Monge, Á; Schilke, P.; Men'shchikov, A.; and Kohno, M.

7 - "Dust polarized emission observations of NGC 6334: BISTRO reveals the details of the complex but organized magnetic field structure of the high-mass star forming hub-filament network",
2021, A&A, 647, A78 (link) – Citations to the Article: >**80**
Arzoumanian, D., Furuya, R.; Hasegawa, T.; Tahani, T.; Sadavoy, S.; Hull, C. L. H.; Johnstone, D.; Koch, P. M.; and the BISTRO collaboration

6 - "Characterizing the properties of nearby molecular filaments observed with Herschel",
2019, A&A, 621, A42 (link) – Citations to the Article: >**184**
Arzoumanian, D.; André, Ph.; Könyves, V.; Palmeirim, P.; Roy, A.; Schneider, N.; Benedettini, M.; Didelon, P.; Di Francesco, J.; Kirk, J.; Ladjelate, B.

5 - "Molecular filament formation and filament-cloud interaction: Hints from Nobeyama 45 m telescope observations",
2018, PASJ, 70, 5, 96 (link) – Citations to the Article: >**50**
Arzoumanian, D.; Shimajiri, Y.; Inutsuka, S.; Inoue, T.; Tachihara, K.

4 - "Planck intermediate results. XXXIII. Signature of the magnetic field geometry of interstellar filaments in dust polarization maps",
2016, A&A, 586, A136 (link)– Citations to the Article: >**90**
Arzoumanian, D.; Boulanger, F.; Falgarone, E.; Ferrière, K.; Montier, L.; Bernard, J.-P.; and the Planck Collaboration

3 - "Formation and evolution of interstellar filaments. Hints from velocity dispersion measurements"
2013, A&A, 553, A119 (link) – Citations to the Article: >**149**
Arzoumanian, D.; André, Ph.; Peretto, N.; Könyves, V.

2 - "Characterizing interstellar filaments with Herschel in IC 5146",
2011, A&A, 529, L6 (link) – Citations to the Article: >**650**
Arzoumanian, D.; André, Ph.; Didelon, P.; & 21 co-authors

1 - "The contribution of star-spots to coronal structure",
2011, MNRAS, 410, 2472 (link) – Citations to the Article: **22**
Arzoumanian, D.; Jardine, M.; Donati, J.-F.; Morin, J.; Johnstone, C.

- Second-authored refereed publications (7) – Number of citations: 268

7 - "Evolution of magnetized hub-filament systems: Comparing the observed properties of W3(OH), W3 Main, and S 106", 2025, A&A, in press
Kumar, M. S. N.; **Arzoumanian, D.**; Inutsuka, S.; Furuya, R.; Bhadari, N. K.

6 - "The role of magnetic field and stellar feedback in the evolution of filamentary structures in collapsing star-forming clouds", 2025, A&A, 698, 119S
Suin, P.; **Arzoumanian, D.**, Zavagno, A., Hennebelle, P.

5 - "Line emission from filaments in molecular clouds", 2023, MNRAS, 522, 3890
Priestley, F. D.; **Arzoumanian, D.**, Whitworth, A. P.

4 - "From Bubbles and Filaments to Cores and Disks: Gas Gathering and Growth of Structure Leading to the Formation of Stellar Systems", Review chapter in the Protostars and Planets VII Book, 2023 (link)
Pineda, J.; **Arzoumanian, D.**, André, Ph.; Friesen, R.; Zavagno, A.; Clarke, C.; Inoue, T.; Chen, C-Y; Lee, Y-N; Soler, Kuffmeier

3- "Filament coalescence and hub structure in MonR2: Implications to massive star and cluster formation", 2022, A&A, 658, A114
Kumar, M. S. N.; **Arzoumanian, D.**; Men'shchikov, A.; Palmeirim, P.; Matsumura, M.; Inutsuka, S-i.

2 - "The role of molecular filaments in the origin of the prestellar core mass function and stellar initial mass function", 2019, A&A, 629, L4, 8
André, Ph.; **Arzoumanian, D.**; Könyves, V.; Shimajiri, Y.; Palmeirim, P.

1 - "Filamentary structure and magnetic field orientation in Musca", 2016, A&A, 590, A110
Cox, N.L.J.; **Arzoumanian, D.**, & 19 co-authors

- Third-authored refereed publications (12)

12 - "Evolution of the Angular Momentum of Molecular Cloud Cores in Magnetized Molecular Filaments", 2024, ApJ, 963, 106
Misugi, K.; Inutsuka, S-i., **Arzoumanian, D.**, Tsukamoto, Y.

11 - "On the 3D Curvature and Dynamics of the Musca filament", 2023, ApJ, 948, 109
Kaminsky, A.; Bonne, L.; **Arzoumanian, D.**; Coude, S.

10 - "Evolution of the Angular Momentum of Molecular Cloud Cores Formed from Filament Fragmentation", 2023, ApJ, 943, 76
Misugi, K.; Inutsuka, S-i., **Arzoumanian, D.**

9 - "On the typical width of Herschel filaments", 2022, A&A, 667, 1
André, Ph.; Palmeirim, P.; **Arzoumanian, D.**

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