



# D8.1: REPORT OF OUTREACH ACTIVITIES





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## **1. INTRODUCTION.**

The Initial Training Network Detailed Anatomy of GALaxies, in short DAGAL, started on April 1st 2012 with the aim of boosting the research career of 8 ESRs and 2 ERs using a combination of training through high-level astrophysical research and a comprehensive package of complimentary skills training. After 42 months of execution, DAGAL has successfully implemented its training programme by synergising the excellence in different areas of extragalactic research across the network, tackling fundamental questions concerning the origin and evolution of galaxies and implementing diverse complementary training actions promoting soft skills acquisition.

Thus, a very active training programme has been executed by DAGAL nodes, continuing and extending their previous joint efforts and establishing new ones using the opportunities provided by DAGAL's networking environment.

In this way, training in OUTREACH was deemed to be an important part of the complementary skills to be acquired during the project. For that purpose, the Network has encouraged the fellows to participate in this kind of activities and got direct outreach training by participating in an educational documentary about the project, produced during the Tenerife meeting.

As it can be seen on the present report, DAGAL fellows have been very active in outreach actions, including them with success in his or her individual training experiences.

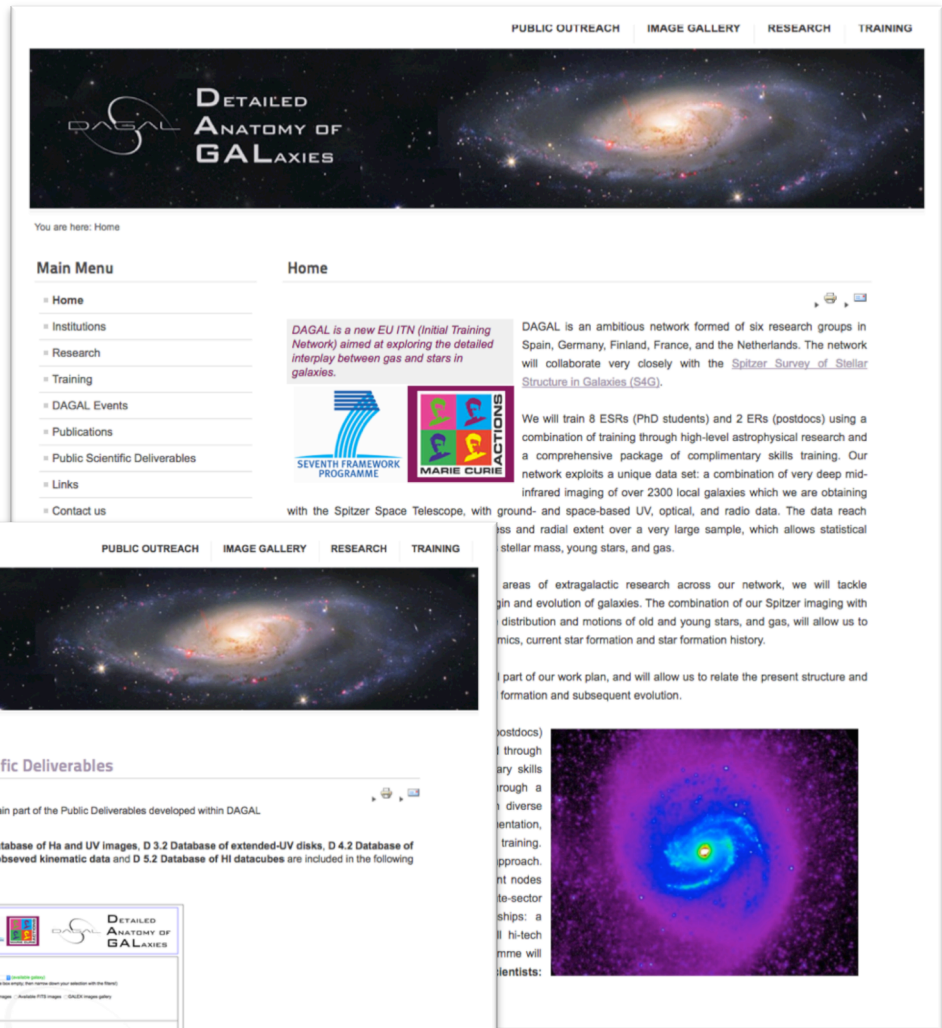
Beyond the fellows, DAGAL team as a whole has actively be involved in outreach activities, being fully committed with their responsibility of communicating science to the society.

The present report shows a sample of the most relevant outreach actions carried out during the project lifetime.

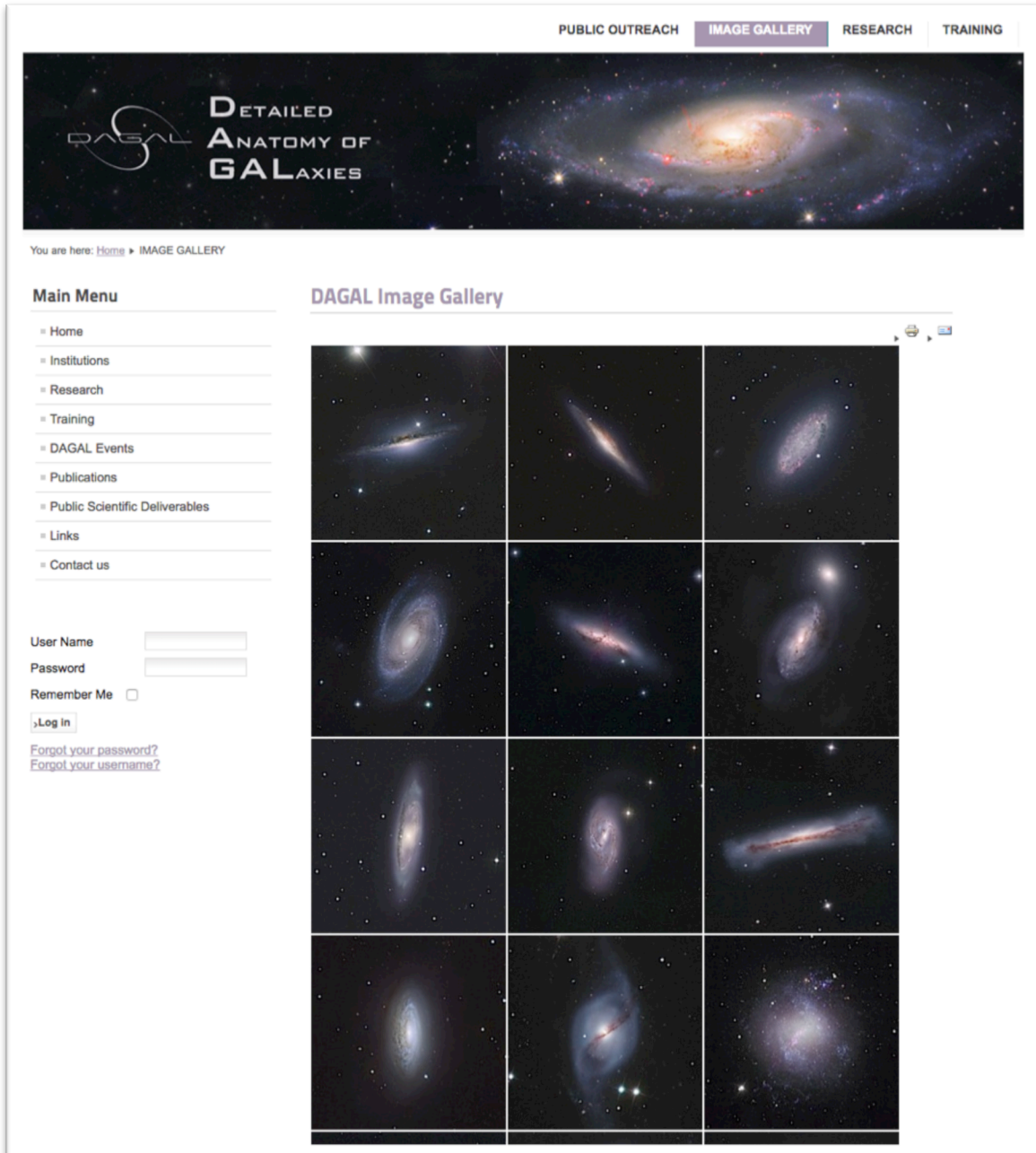
## 2. DAGAL WEBSITE

The project website was developed in Sep 2012, once the DAGAL project manager was hire. An eu domain [www.dagalnetwork.eu](http://www.dagalnetwork.eu) was registered and a comprehensive website was designed. The aim of this page was double, communicating what was DAGAL about and the science in it to society, and being a DAGAL members internal communication system: project documentation, minutes, events, and contacts.

Information of all DAGAL partners, Work Packages and activities has been reflected on the site. This report is public and available on the website as well as other public scientific deliverables.



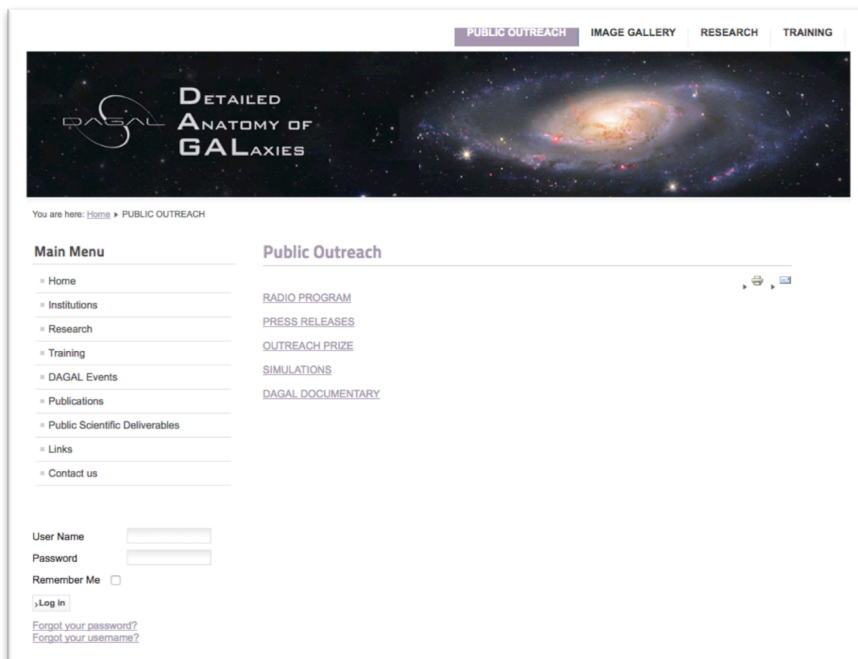
**DAGAL IMAGE GALLERY (Deliverable 8.3).** A gallery of pretty galaxy images was put on the website. This work, in collaboration with prize-winning author and astronomer Nik Szymanek from the UK, features a collection of visually appealing galaxies together with a brief description of its main features. Images are available to be downloaded from the website, [www.dagalnetwork.eu](http://www.dagalnetwork.eu), free to use for all in different sizes and formats. A view of the webpage and examples of these images are given below:





The spiral galaxy NGC 1055 lies nearly edge-on, with its dusty disk highlighting one of the galaxy's most remarkable features: the light from its central bulge extends well above and below the disk plane, in the form of a boxy-shaped halo.

Other outreach information that can be found at the project website:



PUBLIC OUTREACH
IMAGE GALLERY
RESEARCH
TRAINING

DETAILED  
ANATOMY OF  
GALAXIES

You are here: [Home](#) > [PUBLIC OUTREACH](#) > [General](#) > "When galaxies collaide". Winner of the CAF-Elhuyar outreach prize

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## "When galaxies collaide". Winner of the CAF-Elhuyar outreach prize

Miguel Querjeta Pérez / Astrofotokara

# Galaxiek topo egiten dutenean

Thegonia liburuan, Hesiodok sehetasun handiz deskribatzen du munduaren sorrera. Gauza jakina da Greziako kosmogonian Zeus beste jainko guztien alfa ez ezik Kronosen semea ere bazela, hau da, denboraren semea. Horrela, jainkotasunek nolabaitko ordena kosmiko osatzen zuten, koto luze baten zati izanik, bakotzak eginkizun zehatz eta garrantzitsua zuelarik. Kale horretan atzera joan ahal, orien maila noke osatzen duen gure buruari gidatzen badigu, hona hemen zera izango litzatekeen Hesiodoren erantzuna: Kaosa. Hortaz, Grezia klasikoa, nahasmena ordenaren aurkeariztat jotzen zuten. Ulertzen baino ez gara hasi greziarrek, berriro ere, arrazoi zutela: unibertsioan, kolisio bortitzak dira galaxia gehienen jatorria.

**IZAR-MULTZO ERRALDOIAK**

Mount Wilson izeneko mendakaren itontzean, Kalifornian, gara hartan munduko teleskopioak handiena zena gau ilunari begira zegoen, bere 100 hazbeteko diametro litzelarekin. Teleskopioaren alzean, Edwin Hubble izeneko gizon garrantziagarria orainok ikusita zegoen egarritzen zuten gauero, eskuarekin pipa peltuari eusten zolarik, Sherlock Holmes pre-

tonazaren antzera. Astronomo amerikarrak 1919 eta 1926 urteen artean lotu zituen argirik ezak, Baker Streetko detektiboenen maizko misterioa argitu zuen: M31 eta M33 nebulak espiralak aztertuz, frogatu zuen mota horietako astroak gure galaxiatik at daudela izar-mulzo erraldoiak direla. gauran begi-irritatzen ikus ditzakegun izarrak baino askoz urrutiko kokatuak.

Edwin Hubble bikainak horrela ebazti zuen astronomoan artian lukazuzina bilakatzeko sei zen erabakia. Haren unibertsitat hartu ohi da 1920ko apirilaren 26an Washingtonen egin zen hitzaldia; bertan, Great Debate izeneko gai konplexuak aztertuz zuten, forma espiraliko nebulak gure galaxian kokatuak izan daitezkeen egiturak edota askoz urrutiko dauden astro erraldoiak diren, unibertsio hartean modukoak.

1. Hubble, Edwin Hubble astronomoaren argazkia. Ezkerrean, haren proposatutako galaxiak sailkutatze diagrama. Diagrama honetan, galaxia motak hiru mota nagusiak dituzte: eliptikoak, normalek eta barrekin dituzten espiralak. Hubblek, berei, galaxia motak hiru mota dituzte, berriz ere, hurrengoaren arabera sailkutatuko. Hurrengoaren arabera sailkutatuko.

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### 3. Outreach as complementary training.

As said before, DAGAL fellows have been very active carrying out outreach. We show below a sample of the most important actions.



- ER1, ERS1 participated on a press release to explain the project and their experiences within DAGAL. Following an interview, an article in the science and news section of a local Tenerife newspaper (Diario de Avisos) was released. The article outlined the DAGAL Network and research structure, as well as our goals for understanding galaxy formation and evolution.

- ER1, ERS1 and the ERS3 participated in Radio Program for the Canary Islands: Galaxias y Centellas. DAGAL



participated on two episodes of this science communication radio program, discussing the project research on galaxy formation, answering questions from the public on general galaxy properties and explaining the network structure and funding nature. The 2 programs was aired on Canarias Radio <http://www.galaxiasycentellas.com/> and the corresponding podcasts are placed on the project website.

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- ER1 organised a Skype Q&A with Canadian school children.
- **Public outreach prize:** The ESR3, Miguel Querejeta, was the winner of the CAF-Elhuyar prizes for outreach in Basque country, in the general scientific outreach article category. Prize: 2000 euros. See D 8.2. '*Galaxiek topo egiten dutean*' (English: 'When Galaxies Collide'). Elhuyar Magazine, May 2013.
- During the 2013 the UCM node published an article in the RedEscubre newsletter published by the UCM on an instrument we are building to analyse the spectral and dynamical properties of nearby disk galaxies. ESR Alexandre Bouquin participated in a press release by the Subaru telescope and has given several seminars to the general public in France and Japan.



- Guided tours: Athanassia Tsatsi (ESR4), Assisted public guided tours for groups Haus der Astronomie, Heidelberg, 2013



- Outreach movie: Benjamin Moster, Andrea Maccio, Athanassia Tsatsi (ESR4) *Galaxy Mergers in Simulations, 2013*

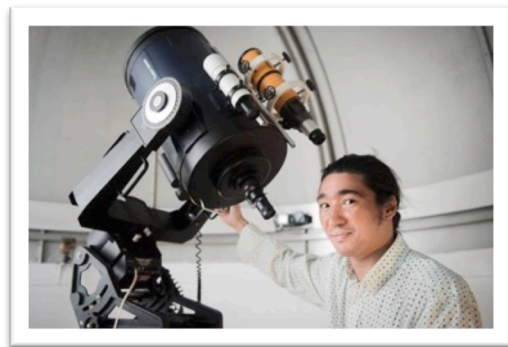
- ERS8, Francesca Fragkoudi organized a public outreach talk in Alambra, Cyprus in December 2013, attended by 60 people. She was also involved in the non-profit Galileo-mobile “Constellation” Project

<http://www.constellationproject.org/about.htm>, which is a science-education initiative that brings astronomy closer to young people in areas with little or no access to outreach programmes. She organized a screening session in the LAM about the activities of this group in Uganda, so as to stimulate wider interest.



- Open days at the Blaauw Observatory – 2012/2015. The ESR5, Anastasia Ponomareva was a volunteer at the open nights at the Blaauw Observatory in Groningen.

- The ESR2 Alexandre Bouquin was selected as “Marie Curie Fellow of the Week” in March 2014.



- Alexandre also actively contributed to the French astronomy week, also known as “Les Nuits des Étoiles”, where he gave a public presentation (in French) about his work in July 2013, while in August 2014 he was given the opportunity to give the

introductory speech and has spoken to approximately 200 visitors while showing them astronomical objects through the telescope available at the Observatoire Municipal de St Jean-le-Blanc (Loiret, France).

- The ESR2 also gave a seminar about his work and the DAGAL project via Skype between Spain and Japan. This being an unusual seminar format, the requested classroom equipped with projectors and screens could only accommodate 30 persons and was held at night. Nonetheless, this was carried flawlessly, and the ESR is currently asked to give another seminar.

- Francesca Iannuzzi, ER2, talked about the project on the internal REA magazine “The READER” with her article “ Why nearby galaxies look the way they do”.



- The ESR7 got interviewed with the local newspapers ("La Nueva España" from Asturias (Spain), "La Opinión de Tenerife" from the Canary Islands (Spain)) presenting the DAGAL project (<http://www.laopinion.es/sociedad/2014/02/16/busca-barras-universo-conocido/526193.html>). 16/02/2014.



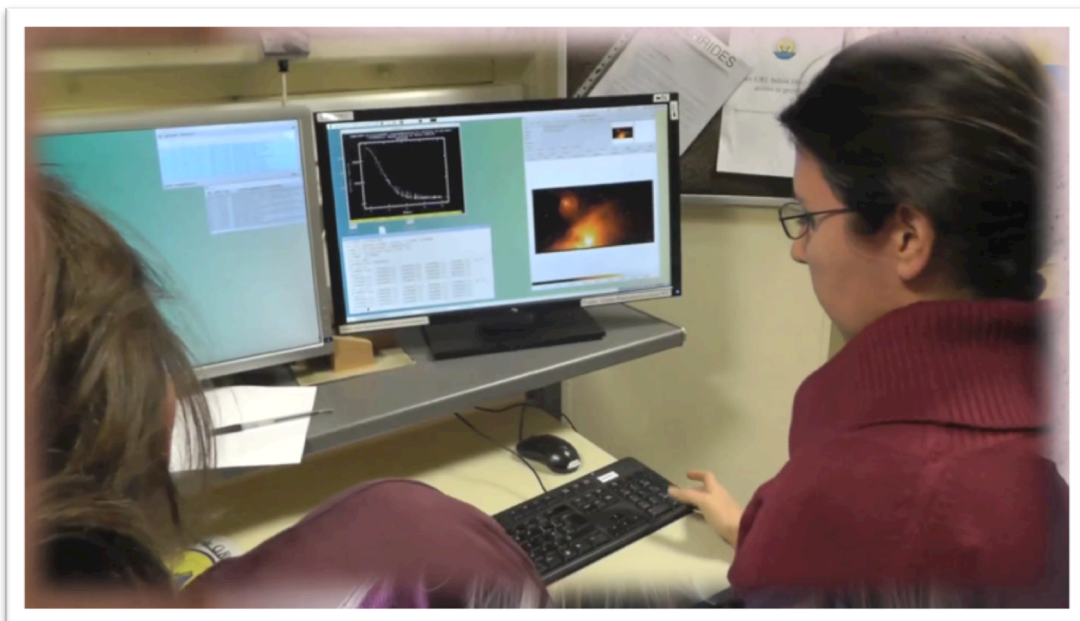
- Popular science article in Basque: Miguel Querejeta (ESR3) 'Eta eguna gau bilakatu zen... Talesek iragarria?' ('And the day suddely turned to night... predicted by Thales?'). Elhuyar Magazine, November 2014
- Press release focus on Athanasia's Tsatsi (ESR4) research: "Galactic "rocket engine" explains unusual stellar motion in galaxies" MPIA, March 2015

<http://www.mpia.de/news/science/2015-04-galactic-rockets>

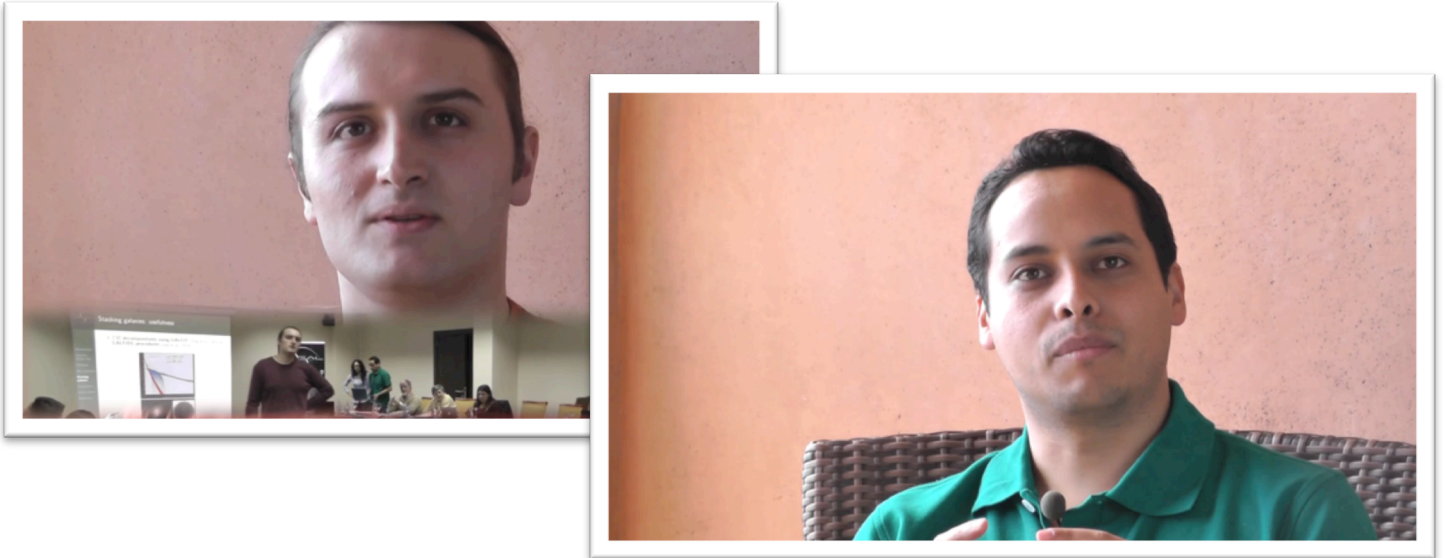
- **DAGAL educational documentary**

During the annual DAGAL meeting in Tenerife a short documentary was produced describing the DAGAL project. The emphasis is on the young researchers, their variety of origins, the variety of the DAGAL nodes, and their own descriptions of what their research entails. This is supplemented by explanations of the DAGAL project and the research programme from some of the senior researchers who attended the meeting.

The documentary starts at the Headquarters of the Instituto de Astrofísica de Canarias in Tenerife and then accompanies the young researchers as they spend a night observing at the Observatorio del Roque de los Muchachos, on the Island of La Palma. Explanations of the research were then filmed during the annual meeting, which followed the



observing run, and took place in Tenerife. The young researchers give a good feel for their hopes and aspirations based on their learning and training experiences in the DAGAL project. The documentary can serve as a sampler of the professional lives of a project group of Marie Curie fellows.



The whole video can be downloaded from the project website:  
[http://www.dagalnetwork.eu/images/OUTREACH/DAGAL\\_FINAL.mov](http://www.dagalnetwork.eu/images/OUTREACH/DAGAL_FINAL.mov)

#### 4. DAGAL in the social media

ER2 and ER5 managed the Twitter and a Facebook pages. Both accounts were set up and are duly maintained by the DAGAL fellows which reports to the general public on events in astronomy related to galaxies. They count up to now with 308 and 249 followers each: [www.twitter.com/dagal\\_eu](http://www.twitter.com/dagal_eu) <https://www.facebook.com/DAGALaxies?fref=ts>



## **5. DAGAL on the radio**

DAGAL has collaborated with the regional radio program for the Canary Islands: Galaxias y Centellas.

Different members of the network have participated on three episodes of this science communication radio program, discussing the project research on galaxy formation, answering questions from the public on general galaxy properties and explaining the network structure and funding nature.

These programs were aired on Canarias Radio <http://www.galaxiasycentellas.com/> and the corresponding podcasts are placed on at the outreach section of the project website <http://www.dagalnetwork.eu/public-outreach?layout=edit&id=83>



## 6. Outreach by senior DAGAL members.

- S. Comeron. Lecture for Laanila high school students on 17 January 2013. The audience was composed of mathematics/physics oriented last-year students, soon-to-apply to university programs.
- J. Beckman. Lecture at the “Almería Astronomy Week”, Almería, Spain. Title: “Galactic Cannibalism”. Date: May 11th 2013.

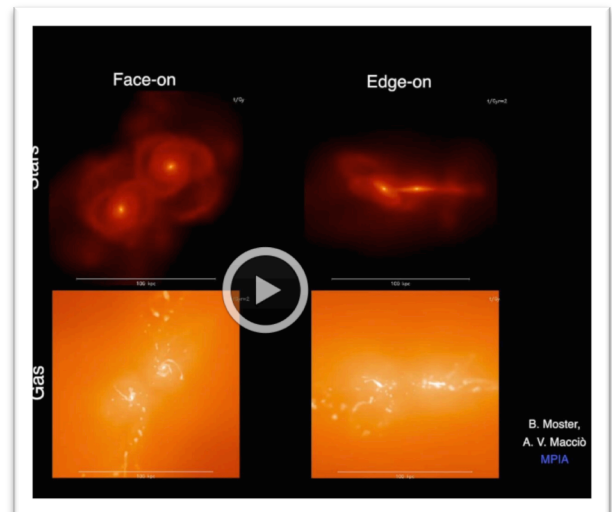


- J. Beckman Lecture at Noche de las Perseidas, La Medida, Güimar, Spain. Tenerife. Title: “Meteorites, Stardust, and Life”. August 12, 2013.

- Outreach movie: Benjamin Moster, Andrea Maccio, Athanassia Tsatsi (ESR4) *Galaxy Mergers in Simulations, 2013*. <http://www.dagalnetwork.eu/public-outreach?layout=edit&id=147>

- Public lectures: Glenn van de Ven & Jesus Falcon-Barroso “*Exposing the intimate life of galaxies*” Porto, Portugal, October 17, 2013

- Public lectures: Andrea Maccio: “*Creating your own galaxy*”. BERLIN.MINDS meeting. Berlin, Germany, December 11, 2013



- Oulu Science Days 2013: Introduction to Astronomy via Telescope Images Sebastien Comeron (workshop for high school students, September 10th, 2013)

- Oulu University ABI days: Introduction to Astronomy studies and astronomical research in Oulu (incl. DAGAL) Heikki Salo and Sebastien Comeron (talks to last-year high school students planning their future university studies, Nov 20th and 21th, 2013)

- Series of open Philosophy and History of Science Lectures in the University of Oulu offered by Comeron, S:
  - Is dark matter the most valid explanation for the mass which is missing in the Universe. October 31, 2012
  - On the History of Discovery of the Expanding Universe, Dec. 12, 2012
  - The Road to Big Bang, October 29, 2014
  - Two alternatives to the standard cosmological model, March 29, 2014.
- Albert Bosma gave a talk/discussion hour on the dark matter problem at a manifestation organized by the Laboratory for Excellence OCEVU, as part of a weeklong exhibition on the “two infinities”, which took place in the framework of the Marseille – Cultural Capital of Europe 2013 programme.
- Jesús Falcón Barroso (January 26th 2016). Outreach talk at Colegio Luther King de La Laguna: “Wonders of the Universe”.

**Wonders of the universe**  
Viernes 11 de Abril de 2014 00:00

As part of the 1st ESO Culture and Sports Week, our students could enjoy a very lively and graphic walk through the Wonders of the Universe, thanks to the lecture given by our former student, PhD in Astrophysics awarded by the University of Nottingham, Jesús Falcón Barroso.

Having previously worked for the European Space Agency, Dr. Jesús Falcón is now working for the Instituto de Astrofísica de Canarias, where he researches in Astrophysics as well as publishes and gives lectures at international level on a regular basis.

We would like to thank him for his precious time and the interest aroused in our 1st ESO students about the mysterious wonders that the Universe beholds.

[Leer noticia en español.](#)

- John Beckman: “ La Música de las Galaxias” given during the 12<sup>th</sup> Astronomy and Astrophysics Week in Almería, June 2015.
- Evangelia Athannassoula and Albert Bosma have regular discussions (about twice a year) on recent results on the formation and evolution of galaxies with prominent members of the amateur astronomers club of Corfu (Greece), of which they are honorary members. Albert Bosma gave a public talk in Corfu on December 21, 2015, attended by 113 people, on the work done with S4G and

DAGAL. This was followed by a long discussion session in which Evangelia Athanassoula and Albert Bosma answered questions from the audience, and further discussions with the Corfu astronomy club members.



η Αστρονομική  
Εταιρεία  
Κέρκυρας

διοργανώνει διάλεξη με θέμα

**Παρατηρώντας Γαλαξίες  
με Διαστημικά Τηλεσκόπια**  
το τηλεσκόπιο Spitzer και η ομάδα DAGAL

Ομιλητές:

**Λία Αθανασούλα**  
Αστροφυσικός, Καθηγήτρια Πανεπιστημίου Μασσαλίας

**Albert Bosma**  
Αστρονόμος, Αστεροσκοπείο Μασσαλίας

**Δευτέρα, 21 Δεκεμβρίου 2015 στις 21:00**  
Στο αμφιθέατρο του Ιονίου Πανεπιστημίου, Ι.Θεοτόκη 72

Είσοδος ελεύθερη

  DETAILED  
ANATOMY OF  
GALAXIES



## 7. DAGAL at the IAUS321 Symposium

During the international conference co-organized by DAGAL, which took place in Toledo on March 2016, several actions were planned in order to bring Astronomy closer to the public. The IAU Symposium was completed by a set of parallel activities which included a popular lecture offered by Prof., Eduardo Bataner (University of Granada) entitled “Toledo and the birth of modern astronomy”.



An astronomical observing session with telescopes open to the general public took place on Wednesday 16<sup>th</sup> March from 19.00 to 22.00 organized by students of the Physics Department of the Universidad Complutense de Madrid (ASAAF-UCM) in collaboration with the DAGAL–UCM node.

