

The background image shows a stone observatory building with a large white domed roof on the left. In the center-right, a large tree is silhouetted against a bright sky where sunbeams are streaming through the branches. The foreground is a grassy lawn with fallen leaves.

# La Voie lactée à partir du Besançon

J. G. Fernández-Trincado

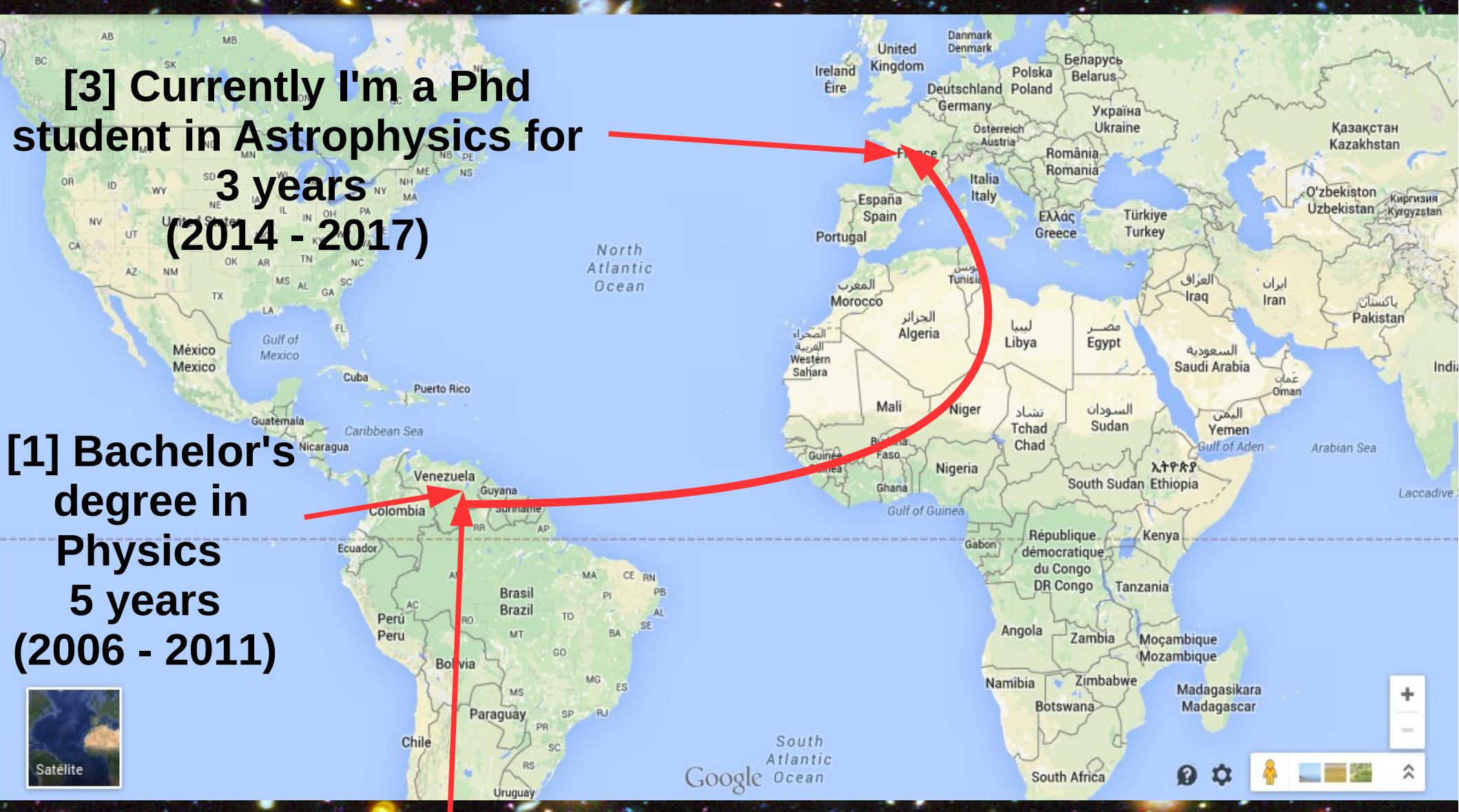
Lieu: Ville de Besançon  
16 Décembre 2014

# My academic formation

[3] Currently I'm a Phd student in Astrophysics for 3 years (2014 - 2017)

[1] Bachelor's degree in Physics 5 years (2006 - 2011)

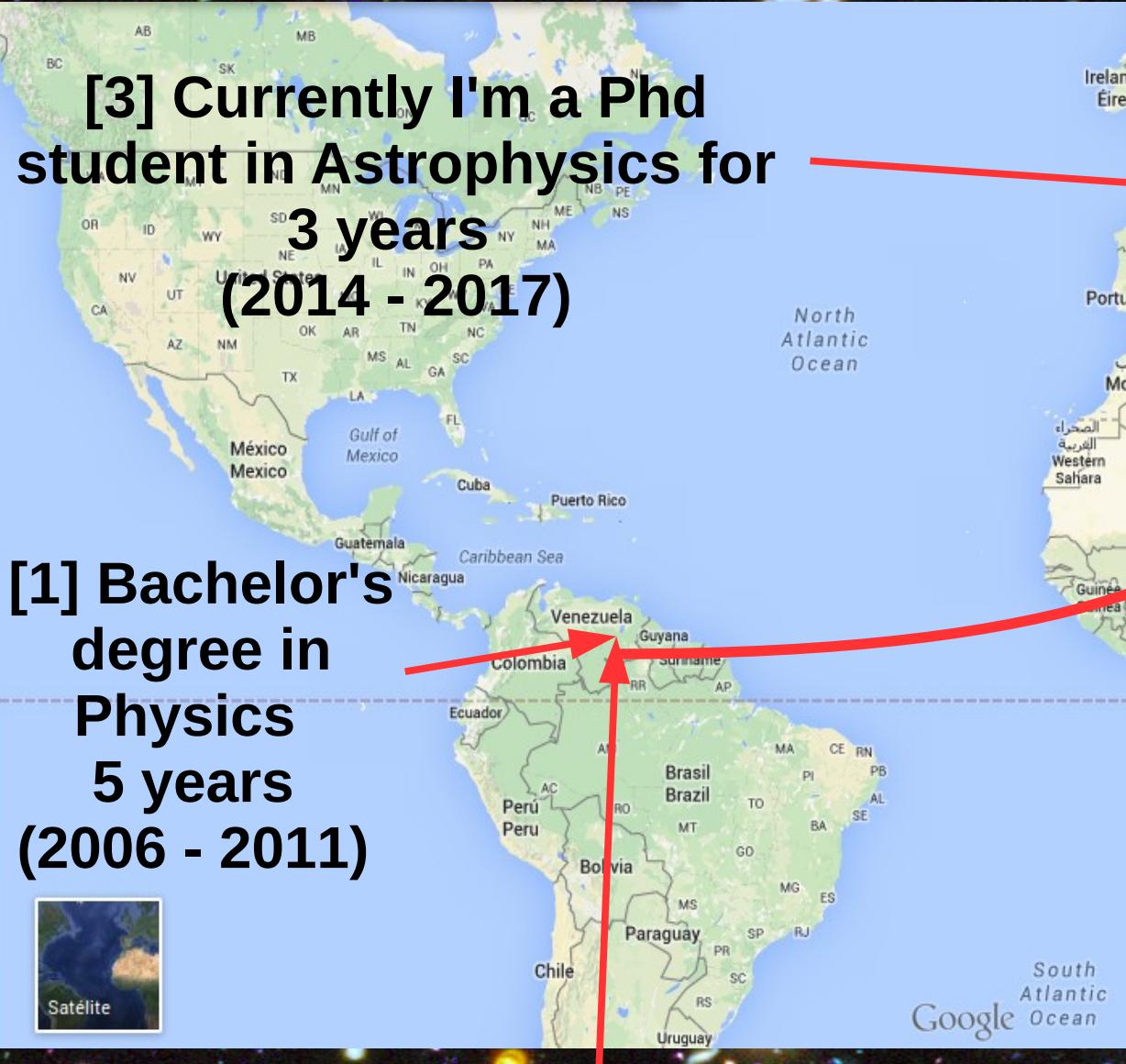
[2] Master's degree in Physics 2 years (2012 - 2014)



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# My research during last 3 years

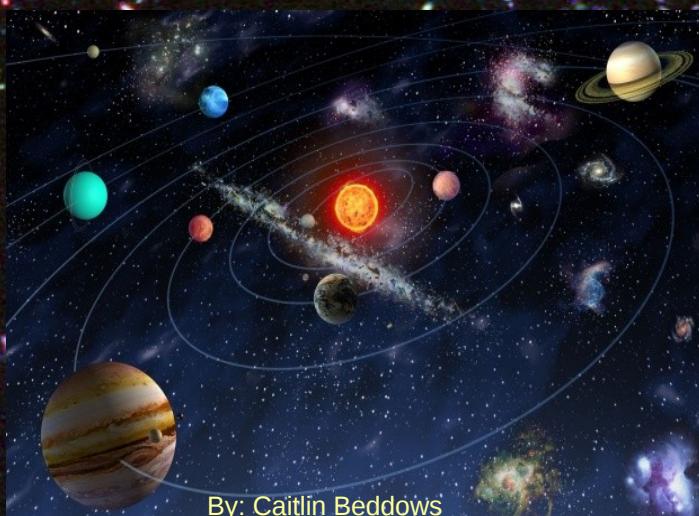
## Summary

Bachelor's and Master's degree (2011-2014)

### [1] Structure and formation of the Halo of the Milky Way

General idea

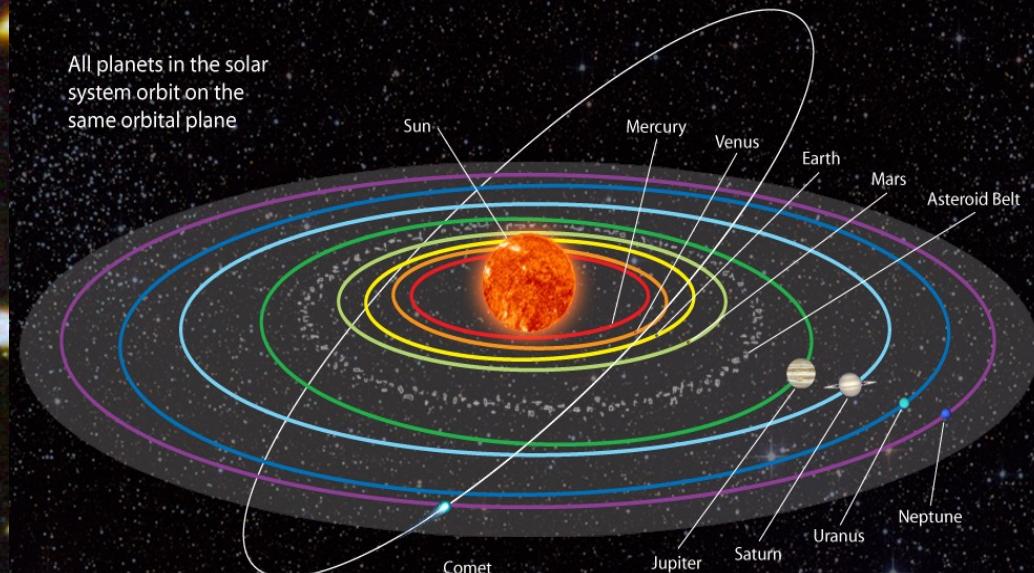
[1] The planets are orbiting around of the SUN



By: Caitlin Beddows

Orbital Plane

All planets in the solar system orbit on the same orbital plane



\* Many comets exist outside the orbital plane

Illustration by Tim Gunther

# My research during last 3 years

## Summary

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[2] The solar system moves around the center of the Milky Way



Image credit: DJ Sadhu, from the video.

# My research during last 3 years

## Summary

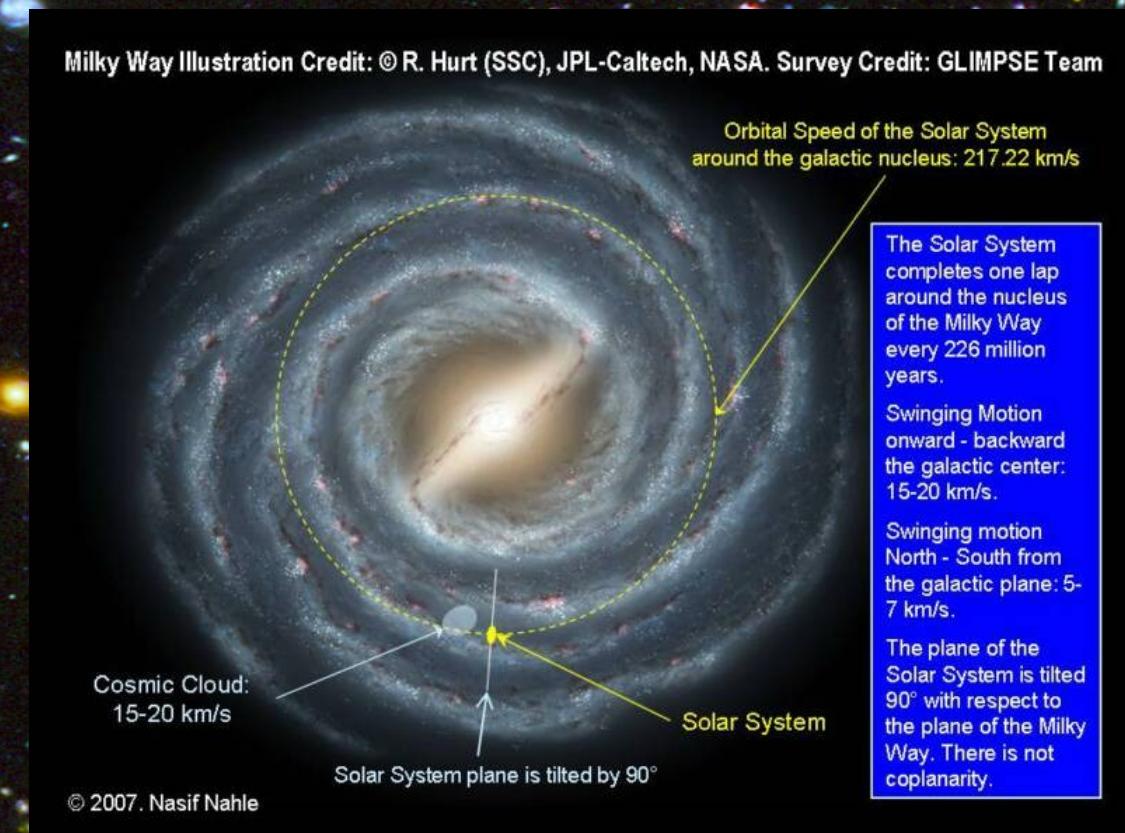
Bachelor's and Master's degree (2011-2014)

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# [1] Structure and formation of the Halo of the Milky Way

## General idea

[1] The planets are orbiting around of the SUN

[2] The solar system moves around the center of the Milky Way

[3] There are other old stars, dwarf galaxies and oldest stellar systems around the Milky Way

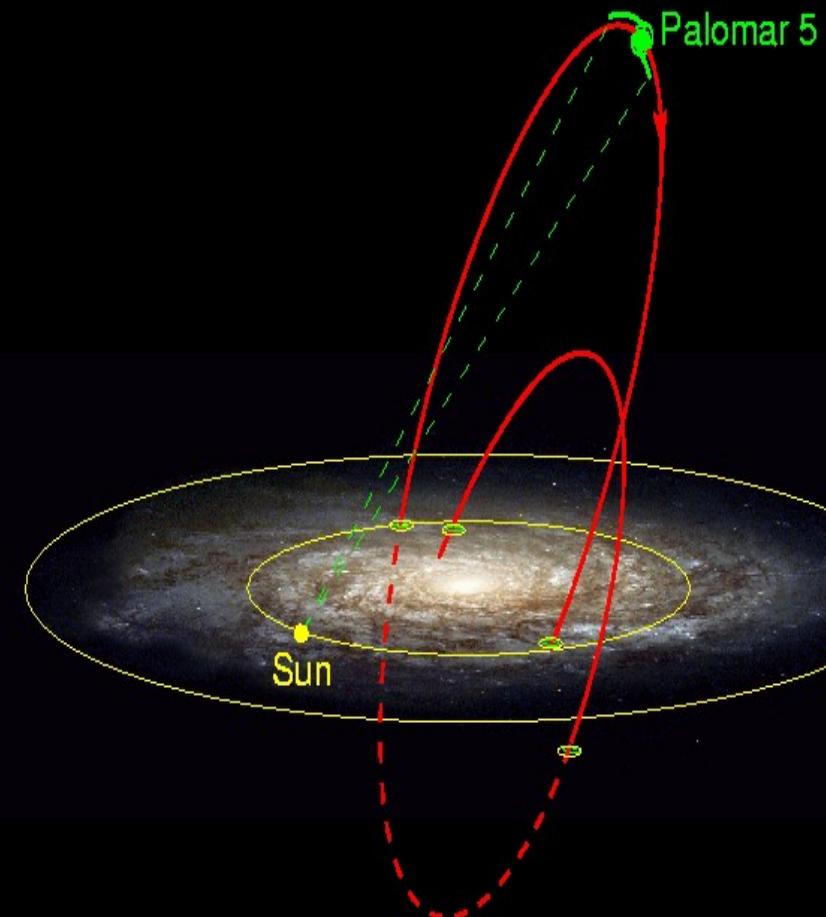


Image by: <http://classic.sdss.org/news/releases/20020603.pal5.html>

# [1] Structure and formation of the Halo of the Milky Way

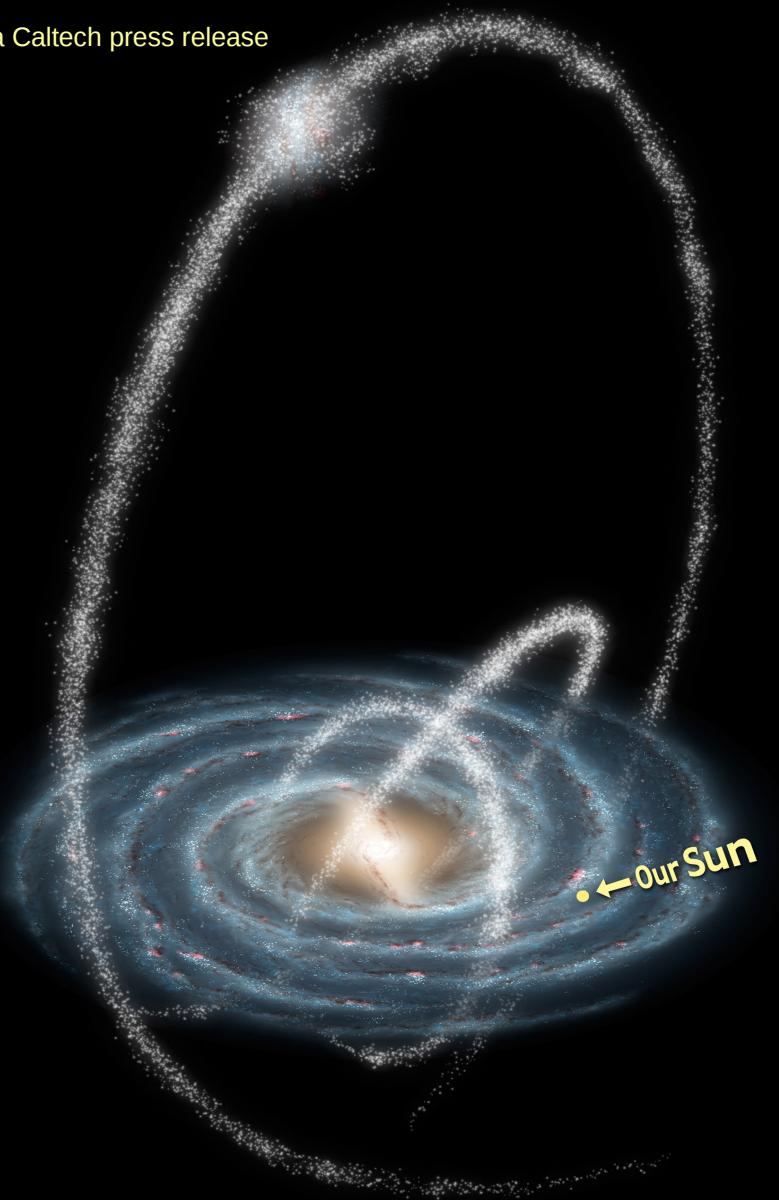
## General idea

[1] The planets are orbiting around of the SUN

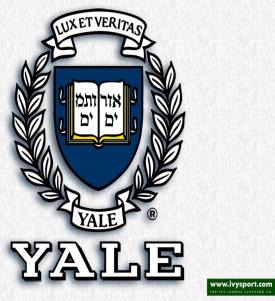
[2] The solar system moves around the center of the Milky Way

[3] Also there are other old stars, dwarf galaxies and oldest stellar systems around the Milky Way

Taken from a Caltech press release

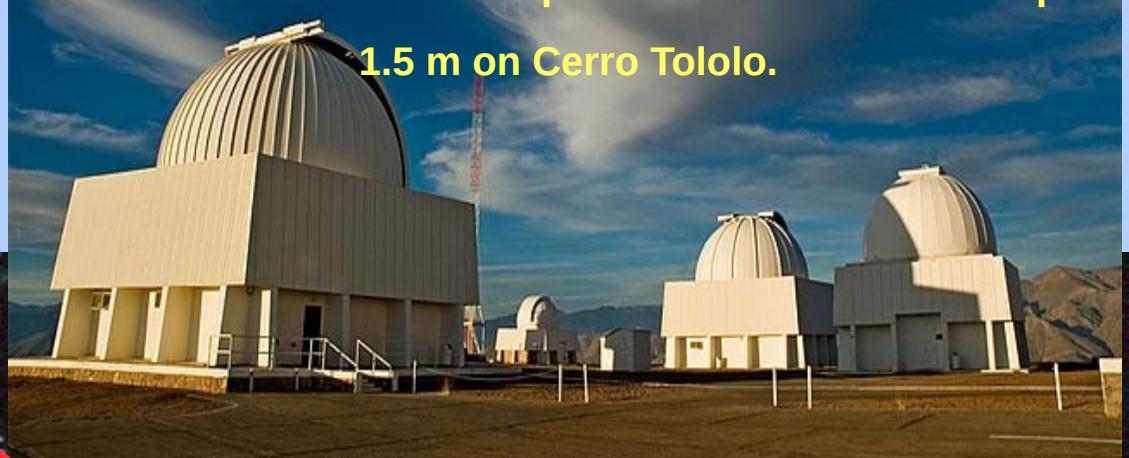


# During my Bachelor's and Master's degree (2011-2014)

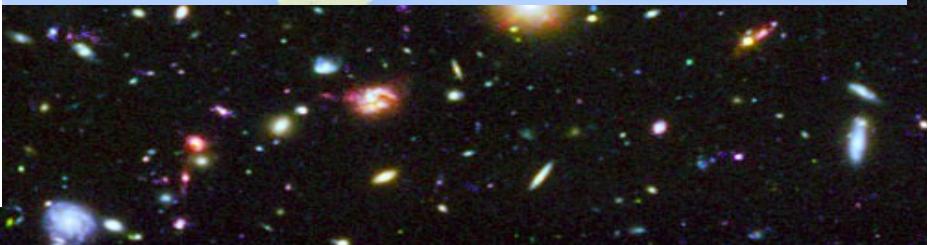


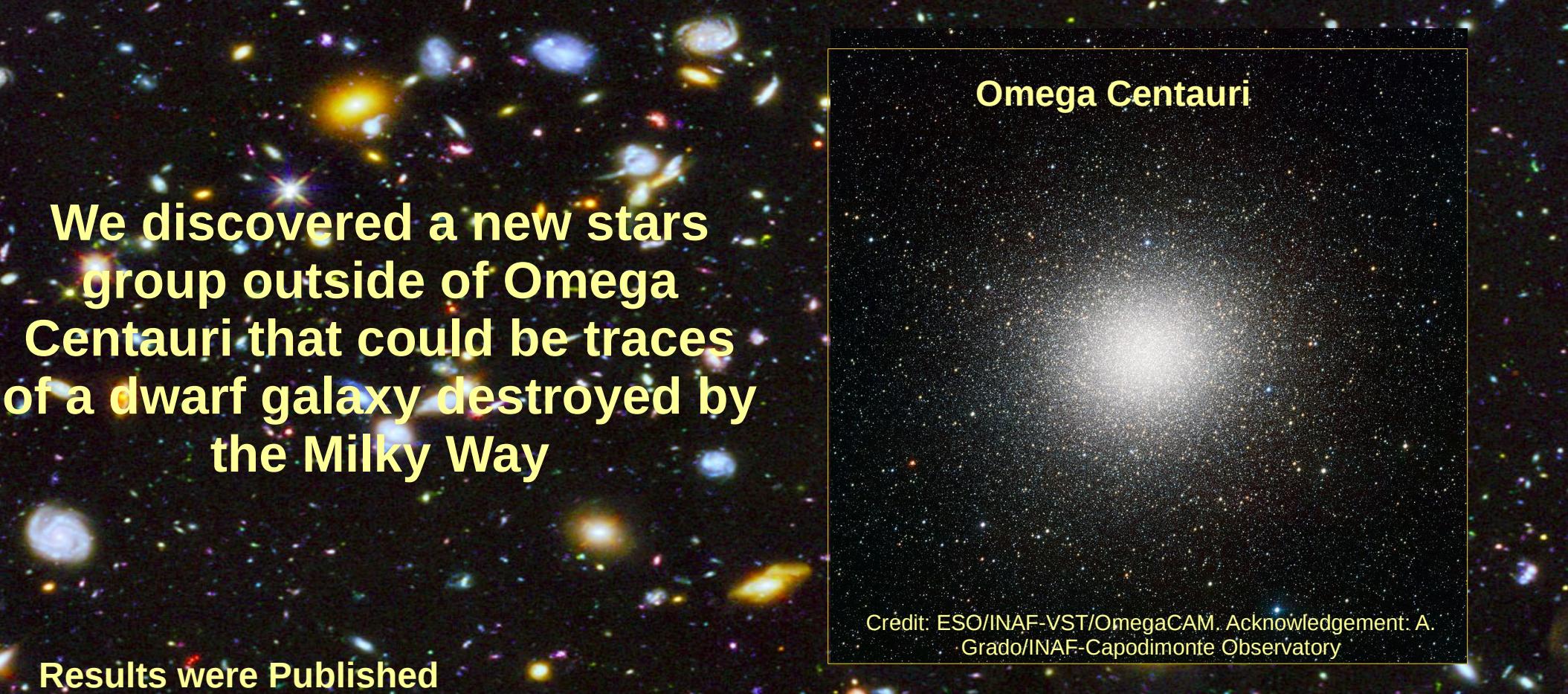
The SMARTS Consortium operates four small telescopes

1.5 m on Cerro Tololo.



# During my Bachelor's and Master's degree (2011-2014)





We discovered a new stars group outside of Omega Centauri that could be traces of a dwarf galaxy destroyed by the Milky Way

## Omega Centauri



Credit: ESO/INAF-VST/OmegaCAM. Acknowledgement: A. Grado/INAF-Capodimonte Observatory

Results were Published

www.aanda.org/index.php?option=com\_article&access=doi&doi=10.1051/0004-6361/201424899

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Title: Searching for tidal tails around omega Centauri using RR Lyrae stars

Author(s): J. G. Fernandez-Trincado, A. K. Vivas, C. E. Mateu, R. Zinn, A. C. Robin, O. Valenzuela, E. Moreno, B. Pichardo

DOI: 10.1051/0004-6361/201424899

Accepted: 11/07/14

A&A - Year: 2014

PDF (2.34 MB)

Homepage

Forthcoming

ARTICLE

- PDF (2.34 MB)

# Currently

## Phd thesis (2014 - 2017)



model.obs-besancon.fr

Model of stellar population synthesis of the Galaxy

Information notice:

No support will be available from Saturday July 26<sup>th</sup> to Sunday August 10<sup>th</sup> 2014.  
In case of problems, the service will be unavailable for that period.

Information :

An unforeseen network cut-off took place from Thursday July 24, 13:10 GMT to today Friday July 25, 9:20 GMT. The model has been unreachable during that period. Operation has now resumed normally.

This version of the Model of stellar population synthesis of the Galaxy is fully described in the following publication:  
A. C. Robin, C. Reylé, S. Derrière and S. Picaud. A synthetic view on structure and evolution of the Milky Way, 2003, *Astron. Astrophys.*, 409:523 [ADS \(erratum: 2004, Astron. Astrophys., 416:157\)](#)

On December 6, 2004, a new version was enabled that allows to use the CFHT-Megacam photometric system. More informations are available [here](#).

Photometric system: Johnson-Cousins

Form of the model simulation: Catalogue simulation

Kinematics: without kinematics

Display model form

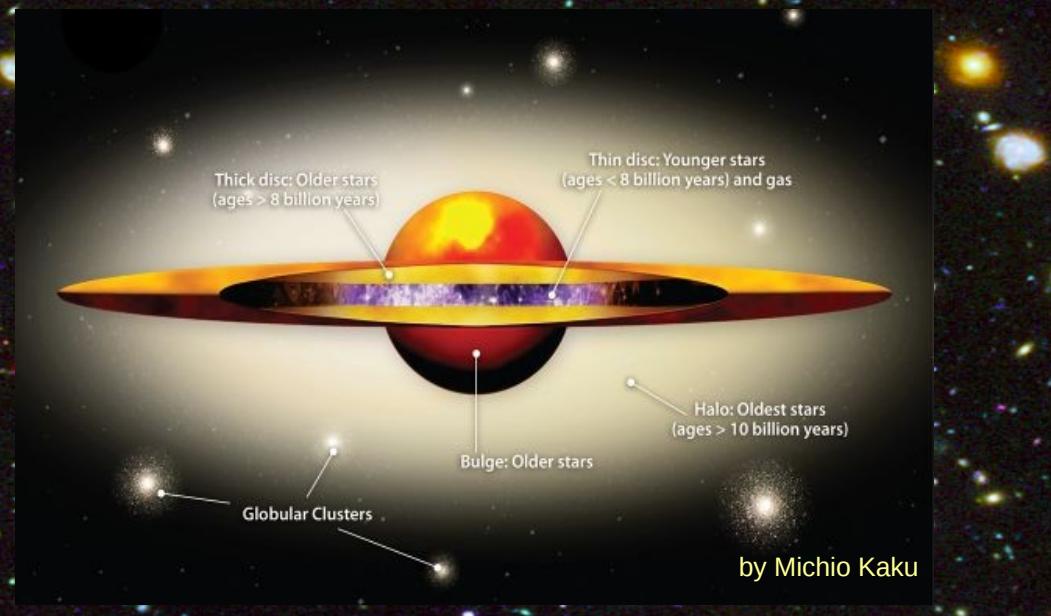
Questions or comments

# Currently

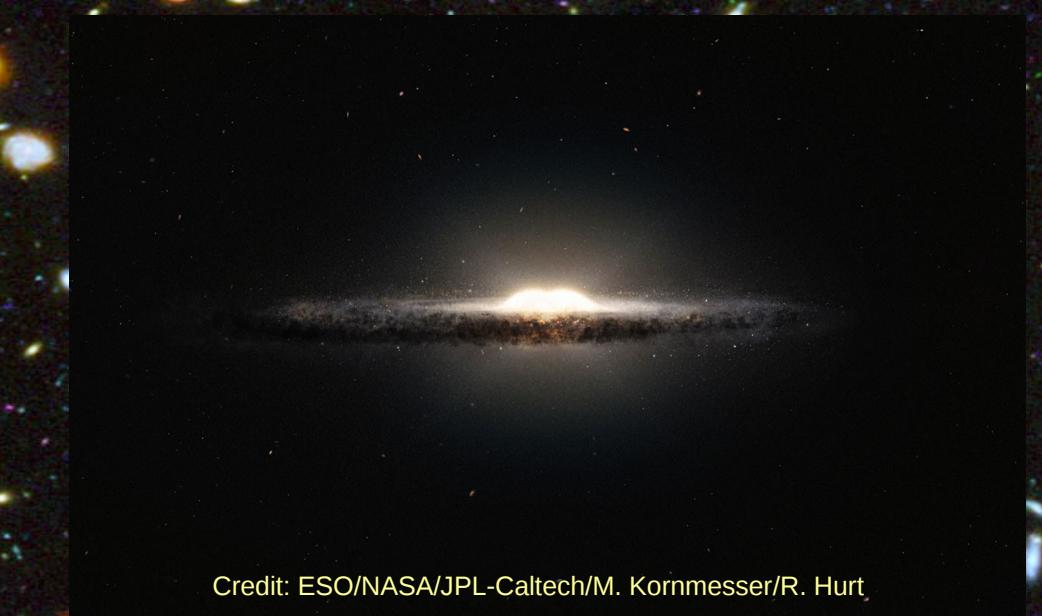
Phd thesis (2014 - 2017)

My goal is to construct a more realistic model of the  
Milky Way  
studying the mass distribution in the Galaxy

Before



Now



Credit: ESO/NASA/JPL-Caltech/M. Kornmesser/R. Hurt

**Currently**

**Phd thesis (2014 - 2017)**

**My goal is to construct a more realistic model of the  
Milky Way  
studying the mass distribution in the Galaxy**

**Before**

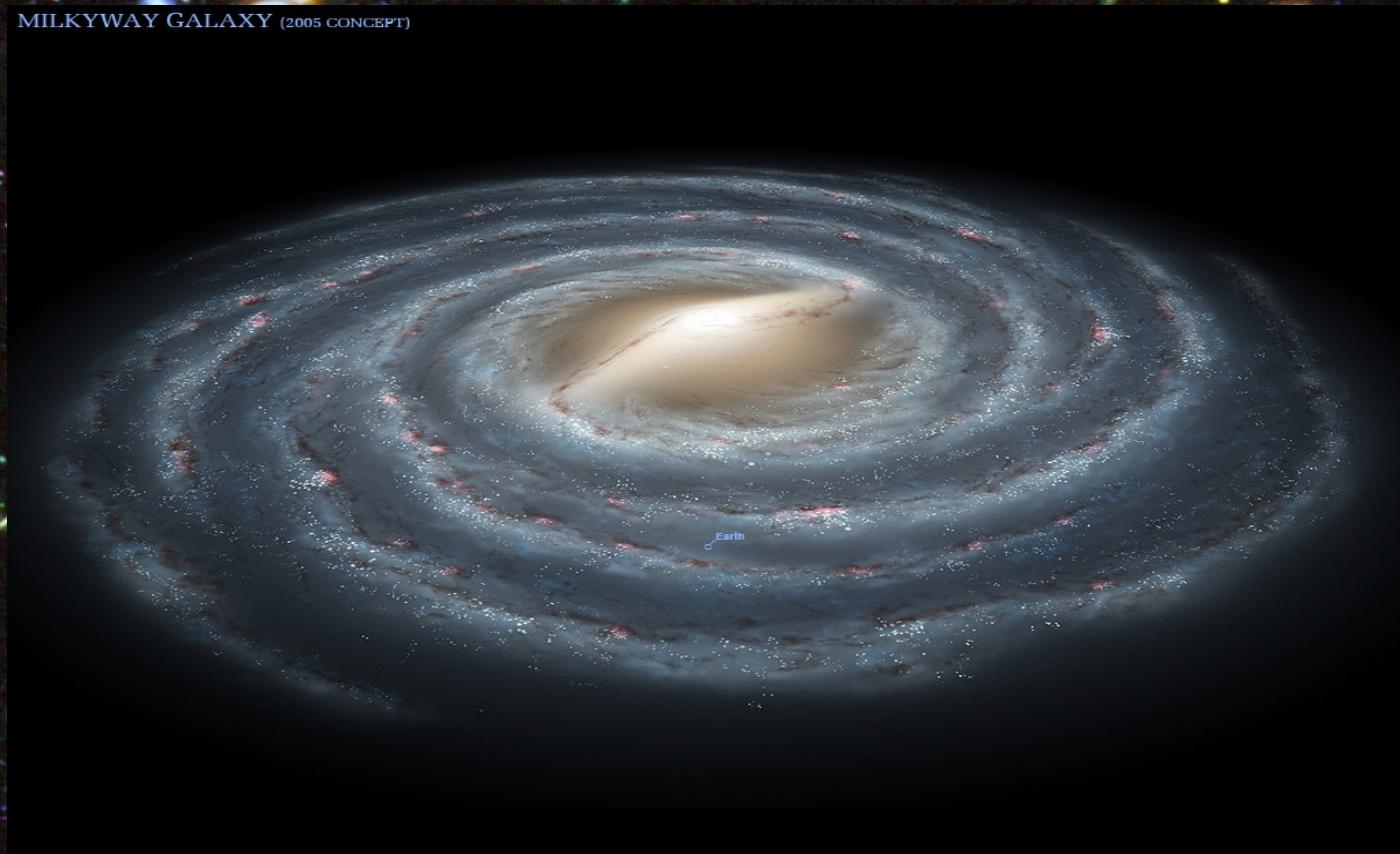


**In preparation**



Currently  
Phd thesis (2014 - 2017)

More realistic model for July 2015



# Currently

Phd thesis (2014 - 2017)

In the near future

Simulations



Credit: NASA, ESA, and T. Brown and J. Tumlinson (STScI)

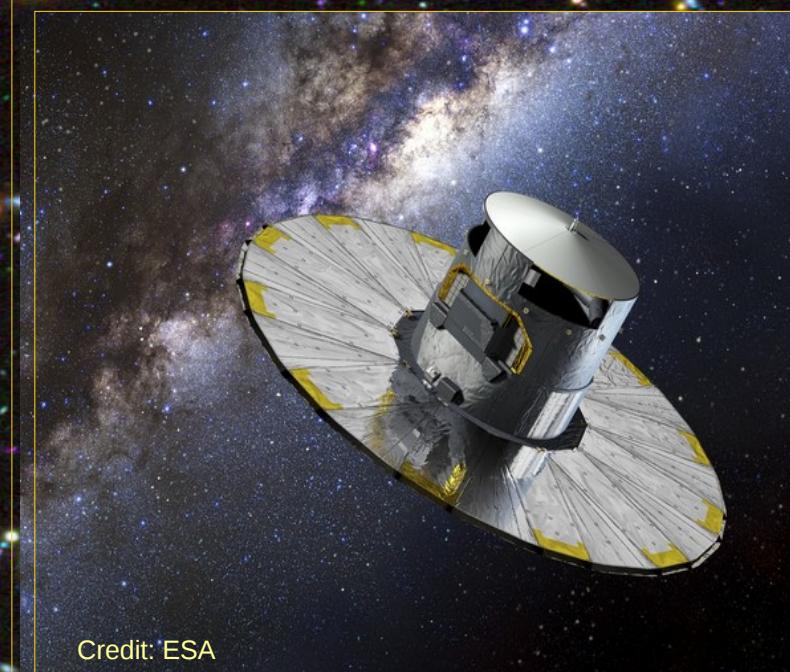
STARS

Velocities

Gravitational  
force

Mass  
distribution

Real data



Credit: ESA



**Merci pour votre attention**