

ISC proudly presents:

6. AIP-Jamboree July 09, 2015

The rules of the game:

- 2 minutes (2 slides)
- Present yourself and your work
- Get to know the colleagues

Orkun Özdarcan Stellar Physics (guest Postdoc)



Born & Live in Izmir **TURKEY**



Ege University, Astronomy & Space Sciences Dept. (Graduate degree, MSc, PhD)





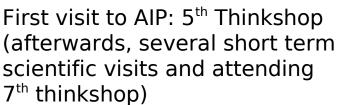
Now: Research Staff

Ege University Observatory



Interested in amateur music



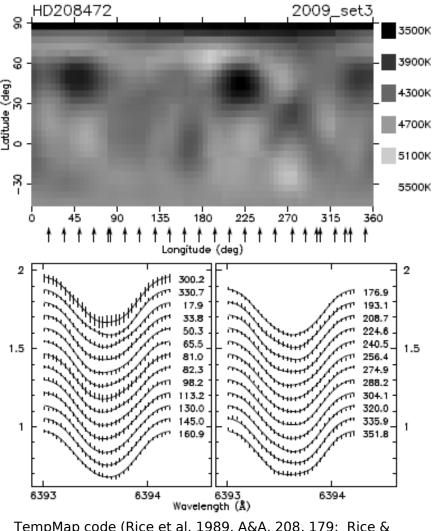


Married with an astronomer...



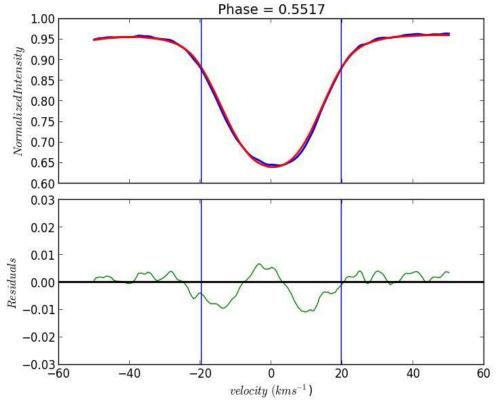
09-07-2015 AIP - Jamboree

Research at AIP: Stellar Surface Imaging



TempMap code (Rice et al. 1989, A&A, 208, 179; Rice & Strassmeier 2000, A&AS, 147, 151)

$$R^*(\lambda, \varphi) = \frac{\iint I(M, \theta) R[M, \theta, \lambda + \Delta \lambda_D(M, \varphi)] \cos \theta dM}{\iint I(M, \theta) \cos \theta dM}$$



Janine Fohlmeister Scientific Coordinator



hired at AIP in March 2015 scientific coordinator and head of press and public outreach

Background:

PhD in Paris and Heidelberg

Scientific interests: gravitational lensing, quasar absorption line systems

Outreach: Virtual Observatory, lecturer astronomy for non-physicists, established school lab at Heidelberg University, Zooniverse citizen science project 'Space Warps', article and graphic design "Sterne und Weltraum" committee work for department of Physics and Astronomy Heidelberg University



Steffen Frey Milky Way and Local Volume

My development toward







2015











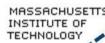
2013 - Research Eng.



2005 – Systems Engineering















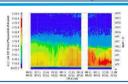


2002 - Postdoc, LIDAR, Spectroscopy











1995 - Laser Remote Sensing - Diploma, PhD

1970 - Born in Weimar









Work at AIP





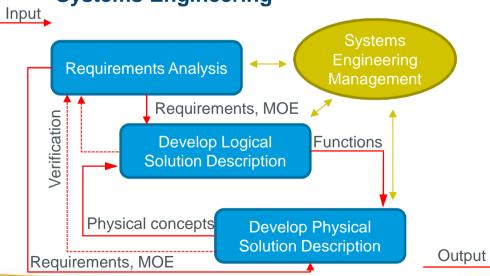




VIRCAM ←→ 4MOST_{G.Hudephol, August 2009}



Systems Engineering



Work package management

- System assembly, integration and Test
- Handling and transport
- Installation and commissioning
- Maintenance

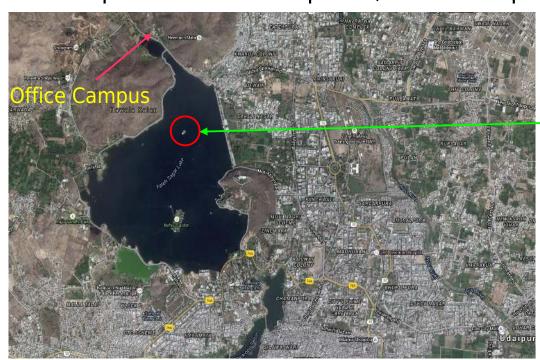
Rohan Louis Solar Optical



Rohan Eugene Louis

PhD – 2010, Udaipur Solar Observatory (USO), PRL, India

USO – part of A&A Group PRL, Unit of Dept. of Space, Govt. of India





Obs. on Fateh Sagar Lake

Udaipur - Venice of the East, City of lakes Area - 64 km², Population - 0.6 million



James Bond movie (1983) - Roger Moore, Maud Adams, Vijay Amritraj

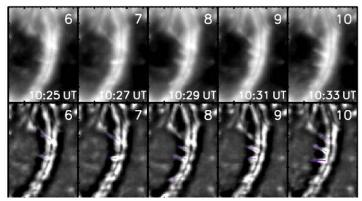


Research Interests

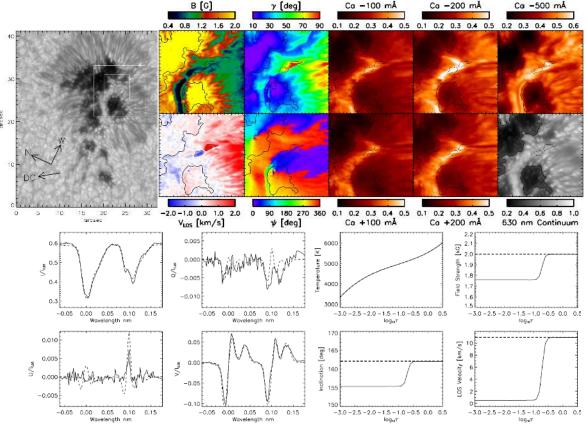
http://www.aip.de/Members/rlouis

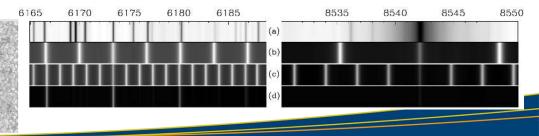
AIP

- Spectro-polarimetry High Resolution Sunspot Physics
- Coupling of the Solar Atmosphere
- Eruptive phenomena flares, jets, surges



- Analyse instrumental effects (stray light) on morphological properties
- Validate image processing algorithms using MHD simulations
- Adaptive Optics
- Narrow-band Filters





Daniel Sablowski Stellar Physics

What I've done.

2015: M.Sc. @ University of Potsdam, start

PhD

Universität Potsdam

2014: founded "Astro Spectroscopy Instruments"

2013: Become editor of spectroscopy section in "Journal für Astronomie" (VdS e.V.)

2012: start @ AIP



2012: B.Sc. @ University of Bayreuth



2010: start @ Friedrich-Alexander University of Erlangen-Nuremberg

2009: start private astronomical activities (hobbysternwarteploesen.de)

02 – 06: vocational training



What I, scientifically, will do...

Doppler-Imaging of secondary component (Ab) of Capella

- Quadruplet-System dividable into two binaries (A & B).
- Hertzsprung gap star
- well determined evolutionary stage (Torres et al. 2009, 2015)

Targets:

Designing Disentangling-Code based on singular value decomposition as well as 2-dim cross-correlation code for RV studies (broadening function, sensitivity, error estimation)

Observations in quadrature with PEPSI covering full rotation period of secondary

$$\begin{pmatrix} \underline{N}_{A1} & \underline{N}_{B1} \\ \vdots & \vdots \\ \underline{N}_{An} & \underline{N}_{Bn} \end{pmatrix} \cdot \begin{pmatrix} \vec{X}_a \\ \vec{X}_b \end{pmatrix} = \begin{pmatrix} \vec{C}_1 \\ \vdots \\ \vec{C}_n \end{pmatrix}$$

SVD: solving for
$$\vec{x} = \begin{pmatrix} \vec{x}_a \\ \vec{x}_b \end{pmatrix}$$

Fourier-Transform reduces problem. Will not be used here.

Sergej Schmalz e-Science

My background

(formally amateur) astronomer since 2010

Interests: (major) meteors, minor bodies & dynamics of the
 Solar System, GRB, (minor) space debries, gravitational lensing, SID



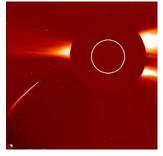
OGS

Study: part-time bachelor at the **TU Berlin** (physics + astro)



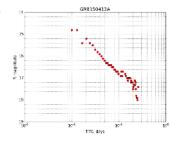
Collaboration: IMO & AKM (meteors), TOTAS (NEA survey at Teide Observatory J04 with ESA's 1-m OGS), Pan-STARRS (minor body survey), ISON (remote observations of minor bodies, space debries, GRB, etc. with 40-cm telescope at ISON-Khureltogoot Observatory O75 in Mongolia)

 Conferences: International Meteor Conference, Asteroids Comets Meteors,
 Astronomy, AKM Seminar, European Comet Conference, The Formation of the Solar System, GRB-Photometry with IRAF Workshop



SOHO sungrazer

- Achievements: ~100 hours of visual meteor observations in 2011, 94 sungrazing **SOHO comets**, multiple asteroids (virtual impactor Apollo-family **2014 QN 266**), **GRB 150413A** light-curve
- Wish-to-myself: optical/spectroscopic observations with larger telescopes & blinking(!), contact to GRB interested persons
- Contact: (private email) sergiuspro@yahoo.de, (Skype) sergiuspro



My work @



Archives of Photographic PLates for Astronomical USE

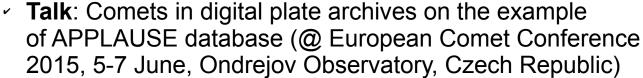


DFG-supported 3-year project: Digitization of astronomical photographic plates and their intergation into the international Virtual Observatory (collaboration with Bamberg and Hamburg Observatories)

Goal: APPLAUSE database (DR 1 published on May 5th, 2015:
 www.plate-archive.org; AIP total estimated share ~ 20.000 plates)

 Major tasks: 1) image data (digitization of plates, observational books, plate envelopes, etc.), 2) meta-data (all available observational data for FITS)

Minor tasks: texting the Astroplate Wiki, communication with other observatories with plate archives (e.g. Tautenburg, Jena, Baldone), etc.



- Amateur Astro Channel interview:
 Digitization of astronomical photographic plates
 (in Russian on Youtube)
- Find me at the library's basement



Comet Mrkos (1957d)





Olivier Schnurr (MWLV / 4MOST)

Jamboree July 2015

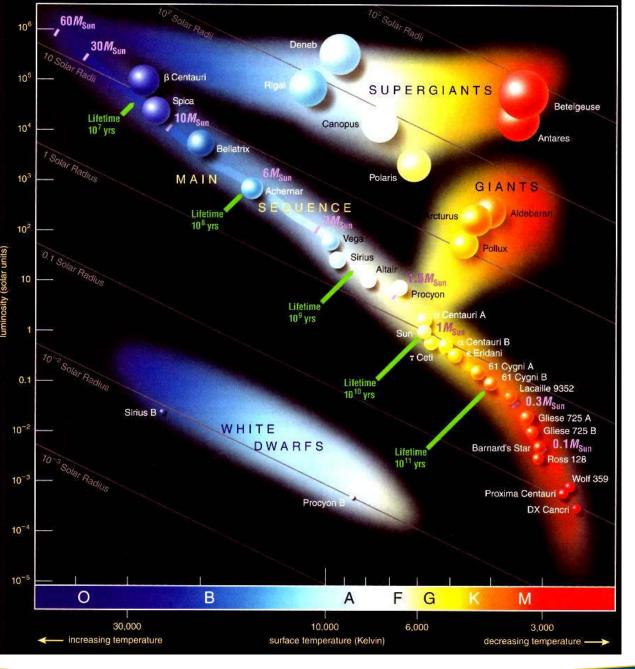


Olivier Schnurr (MWLV / 4MOST)



(That's him!)

Jamboree July 2015



Massive stars: questions

- **Properties:** stellar parameters (mass!), winds, mass loss, B-fields, environment...
- Formation: clustered vs. isolated (runaways), IMF, resolved & unresolved pops, distant SF/starburst regions
- Evolution: OB, WR, B[e], core-collapse (Type Ib/c) SNe

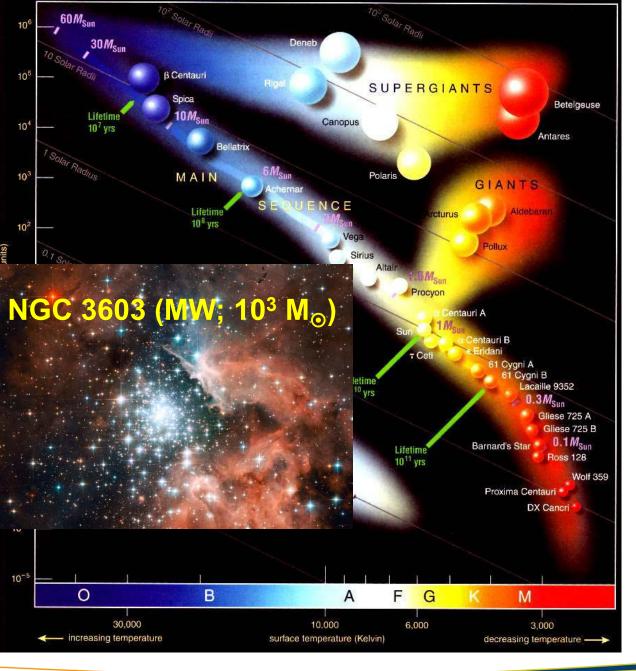
Research tools

- Quantitative spectroscopy+ evolutionary models
- Binaries as calibrators!

Typical targets

Resolved populations in Local Group galaxies

7/8/15 / Jamboree Olivier Schnurr



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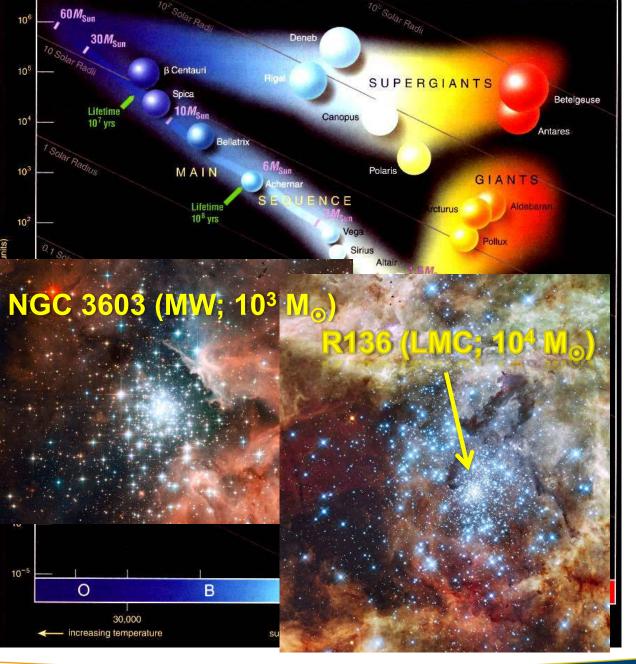
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7/8/15 / Jamboree Olivier Schnurr

4MOST

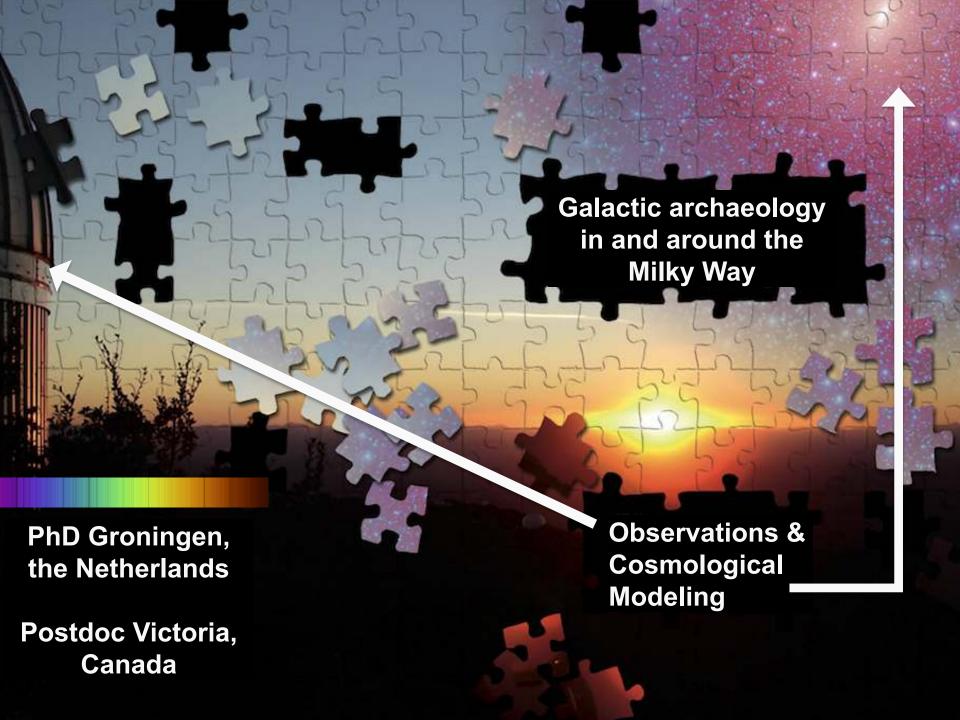
- 2,400 fibers (1,600 with R~5,000, 800 with R~20,000) over 4 square degrees, at ESO-VISTA
- Will do follow-up surveys of Gaia, eROSITA, etc.
- Started 2010; currently in Preliminary Design phase
- Start of operations planned for 2021

4MOST and me

- 2010-13: Project Management
- 2013-now: Instrument Science
 - Main interface between Science Users and Systems Engineering
 - Requirements Engineering & Management
 - System performance modelling & characterization, design trade studies, etc.



Else Starkenburg Milky Way and Local Volume



What is written in the stars? A chemical view on the history of the Milky Way

Emmy Noether research group

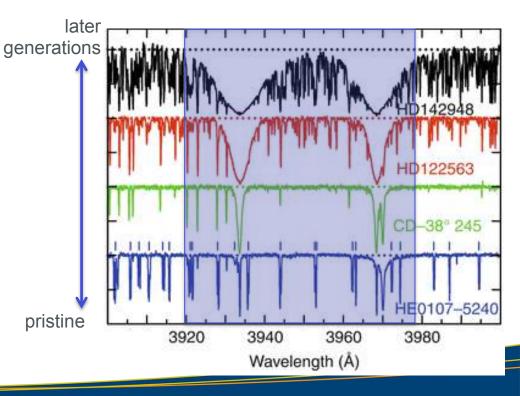
- Study the Galaxy to earliest times
 - Using narrow-band photometry to efficiently mine the Galaxy for the most pristine stars

Go farther out

- Use comparison to dwarf galaxies to study slow evolution chemical tracers
- Compare to stellar surveys and models
- Future surveys:

4MOST





David Streich Milky Way and Local Volume



• Me:

- Born in Berlin,
- Diploma at universityUni Potsdam / AIP
- Practicum in Hawai¹¹
- ongoing PhD at Uni Potsdam / AIP

Research:

- Resolved Stellar Populations
- CMD Analysis, star formation histories
- Globular Clusters
- Galaxy Structure and Evolution

Reinickendorf

Charlottenburg

Wilmersdorf

Zehlendorf

Spandau

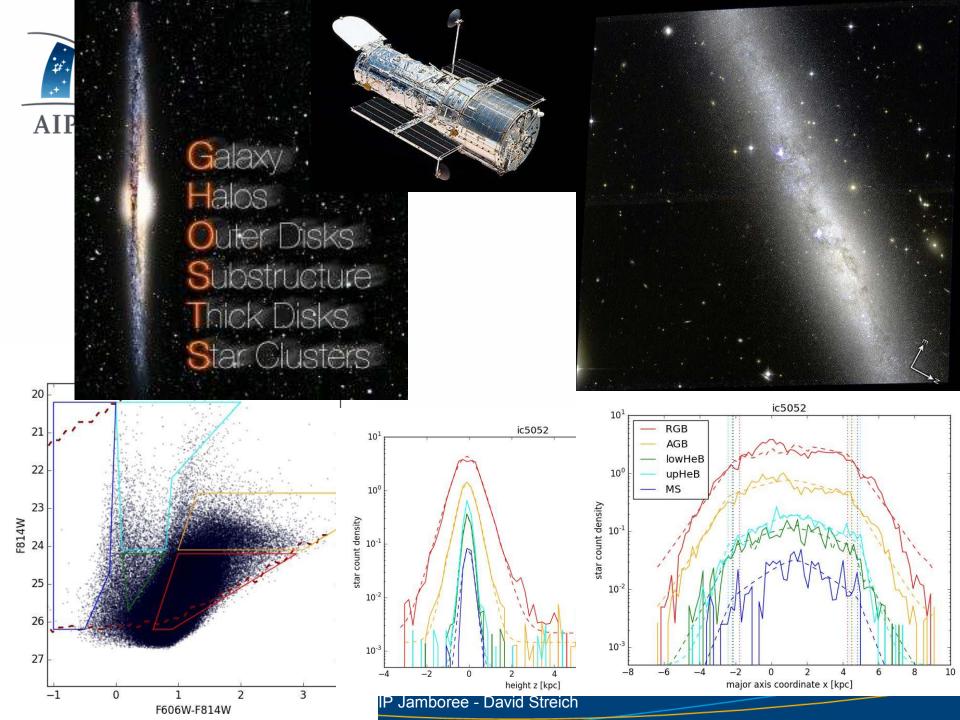
Wedding

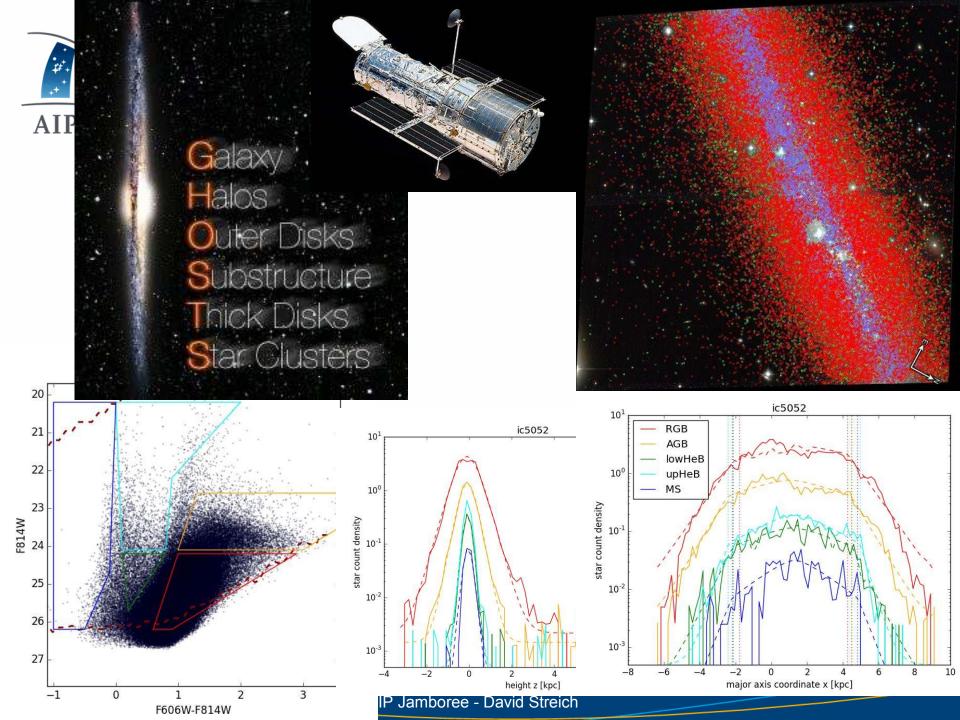
Steglitz

Hohenschönhauser

Living now

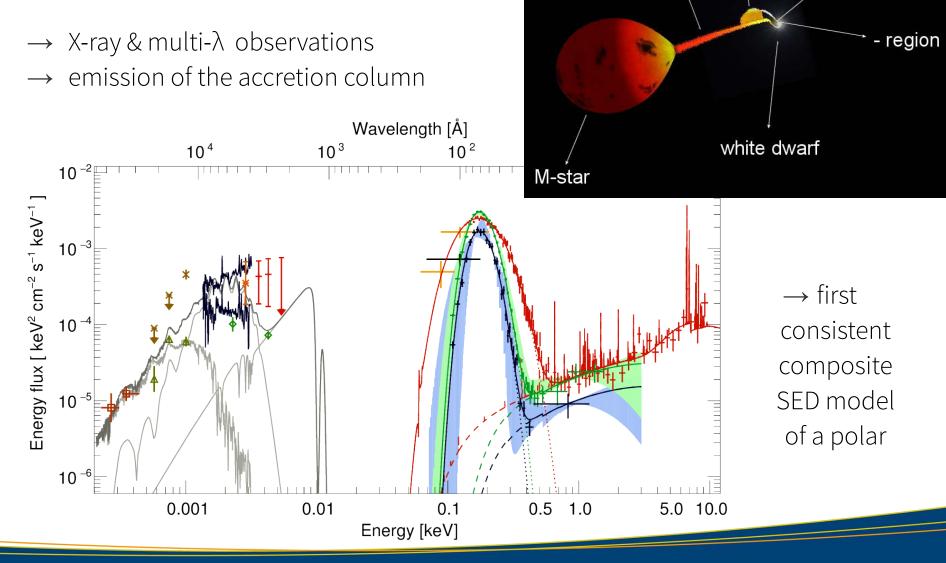
Marzahn





Iris Traulsen Galaxies

Interacting binaries in X-rays

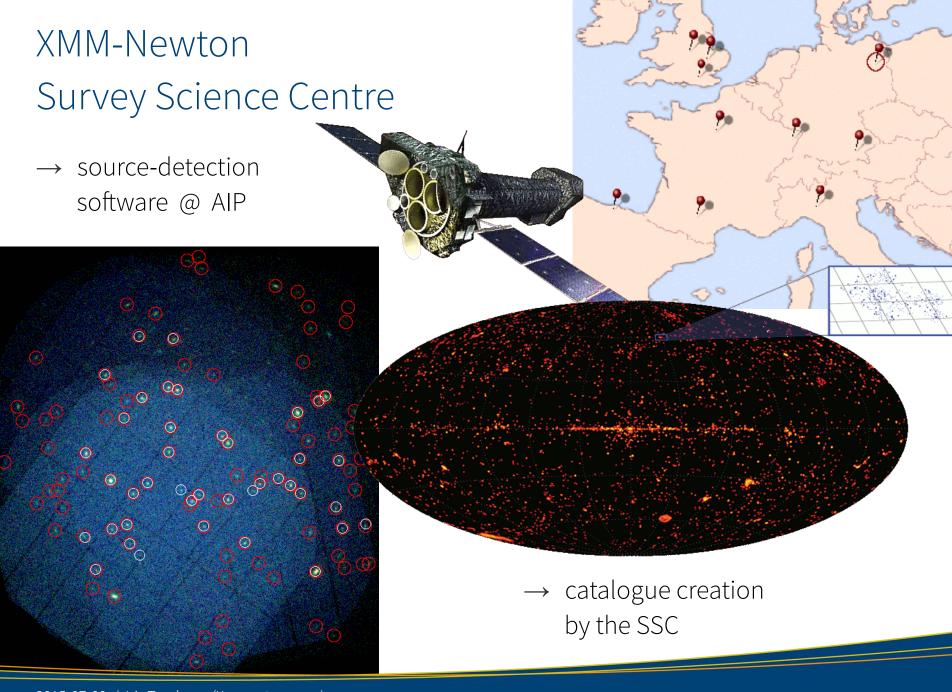


accretion

stream

curtain

accretion column



Marica Valentini Milky Way and Local Volume

Marica Valentini

Milky Way and Local Volume Group



Red Clump Stars
Thin Disk Kinematics



Solar
Like
Oscillating
Red
Giants



Asteroseismology RG Symbiotic Stars



Galactic Archaeology with Asteroseismology



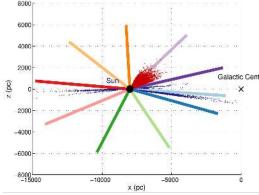


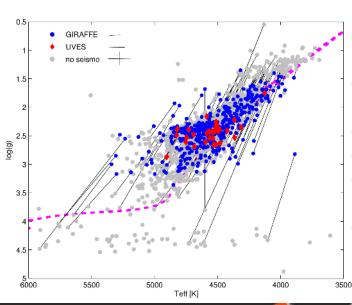




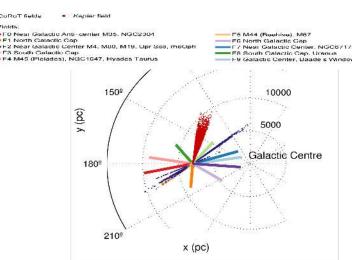








- Mass and Radius (10% and 5%)
- Distance (5%)
- Age (15%)
- Refined Atmospheric **Parameters**
- **Evolutionary Status**



Miglio et al. 2014

GAUFRE Tool

Spectral Analysis through Chi2 Fitting and EW measurement.

Valentini et al. 2013

Senthamizh Pavai Valliappan MHD

About me

PhD student at MHD group since 2013

தமிழ்நாடு

B.Sc. Physics
Thiruvalluvar University

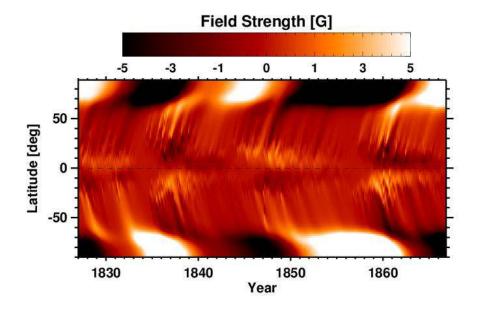


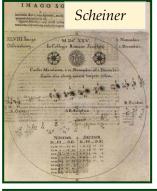
M.Sc. Applied Physics
National Institute of Technology,
Tiruchirappalli



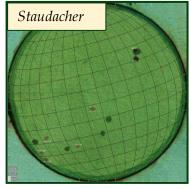
09-07-2015 / AIP Jamboree

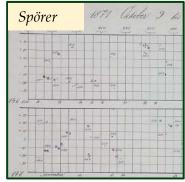
Solar cycle properties and surface-field reconstruction from historical sunspot observations



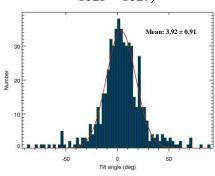




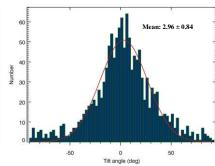




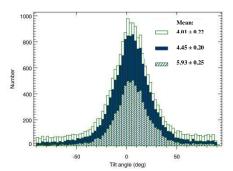
Christoph Scheiner (1618, 1621, 1622, 1624, 1625 – 1627)



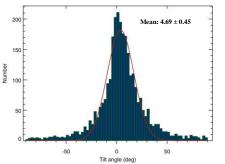
Johann Caspar Staudacher (1749 – 1796)



Samuel Heinrich Schwabe (1825 – 1867)



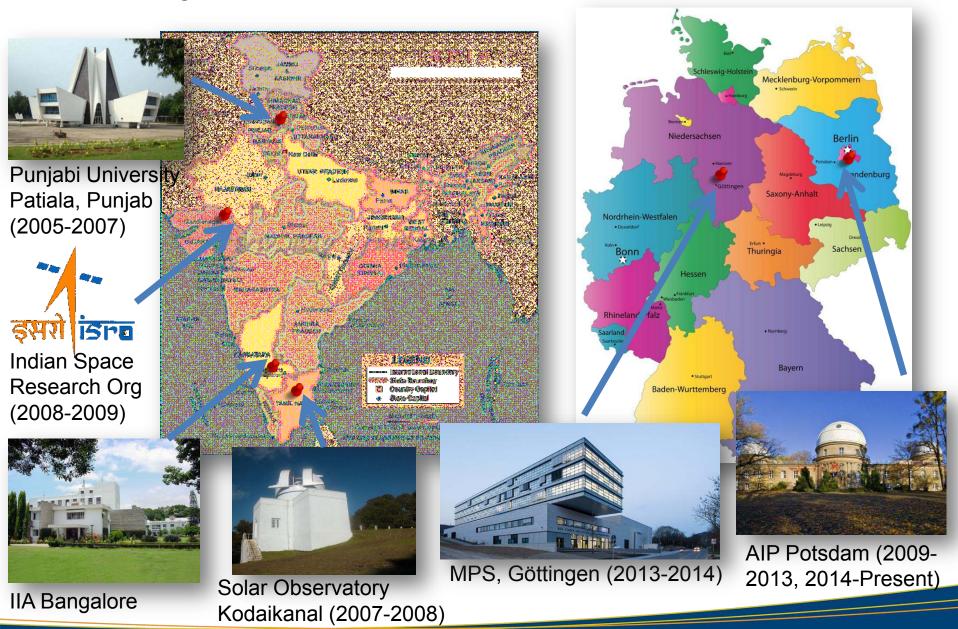
Gustav Spörer (1861 – 1894)



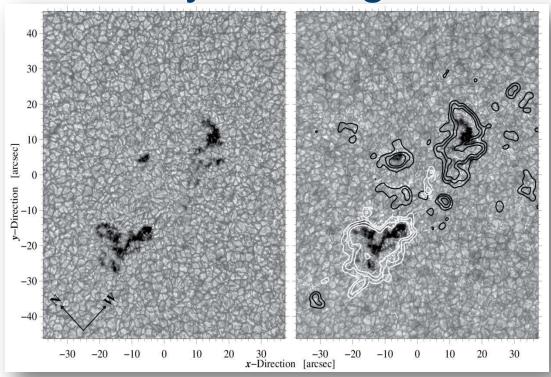
Meetu Verma Solar Optical

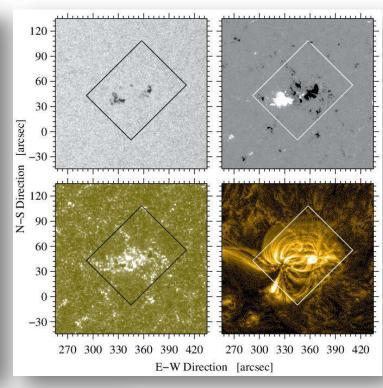
Journey so far.. India

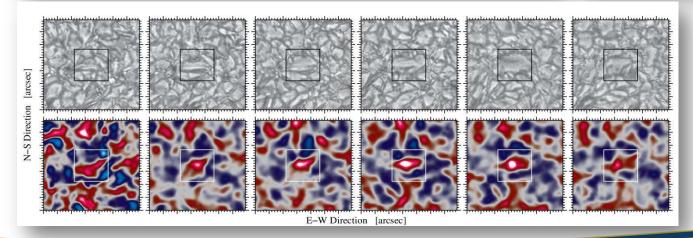
Germany



Currently working on..







- > EU-SOLARNET
- ➤ Early Science Phase Data July-August 2014
- > GFPI Data Pipeline

Christian Vocks Solar Radio



Kinetic plasma physics

Advantages of kinetic models:

- Resolve electron VDFs $f(\vec{r}, \vec{v}, t)$
- States far away from LTE

The method:

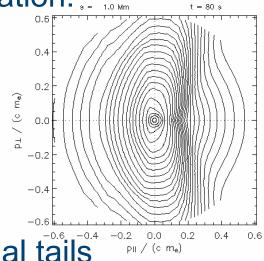
Solve a Vlasov-type equation: ... 1.0 Mm

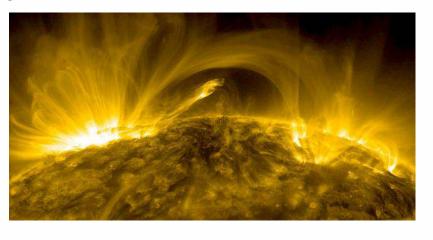
$$\frac{\mathrm{d}f}{\mathrm{d}t} = \frac{\partial}{\partial \vec{v}} \left(\mathbf{D} \, \frac{\partial f}{\partial \vec{v}} \right)$$

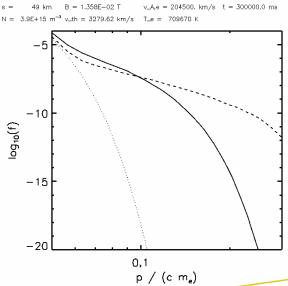
Example: Coronal loop

Whistler-waves

Formation of suprathermal tails







→ related to coronal heating



Solar observations with LOFAR

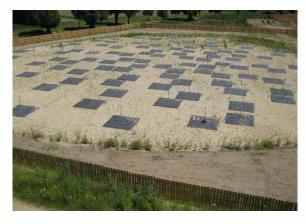


LOFAR:

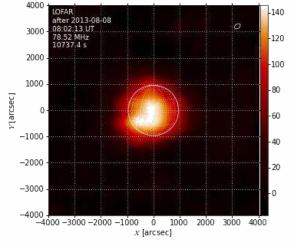
- Station in Bornim
- Radio interferometer
- LB: 10 90 MHz
- HB: 110 250 MHz

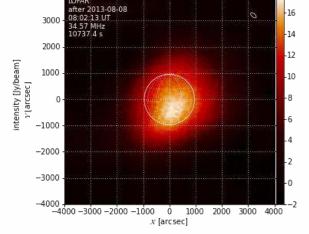
Solar observations:

- Coronal emission
- Plasmafreq.: N^{1/2}
- Quiet Sun images
- Solar activity









79MHz

34 MHz

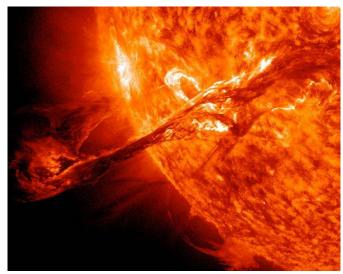
Alexander Warmuth Solar Radio

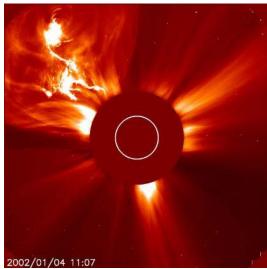
Background:

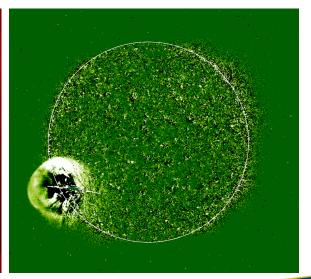
- Ph.D. in Astronomy at University of Graz (Austria)
- since 2002: Postdoc in Solar Radio Physics Group at AIP

Research: solar eruptive events (flares and coronal mass ejections)

- energy release and particle acceleration
- shocks and waves in the solar corona
- solar-stellar connection







Alexander Warmuth

Space missions: RHESSI

 Hard X-ray imaging and spectroscopy

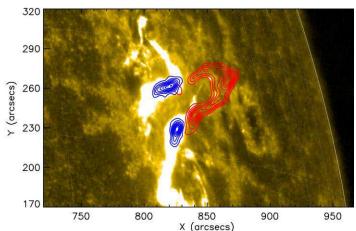
Space missions: STIX for Solar Orbiter:

 Design and development of Imager

Further activities:

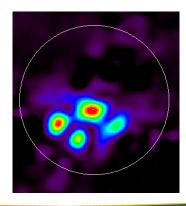
- Radio spectroscopy and imaging
- EUV imaging
- Public outreach

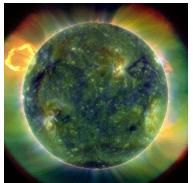














Alexander Warmuth

Peter Weilbacher 3D Spectroscopy

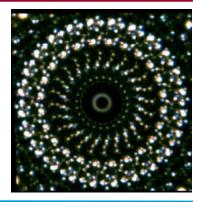
Topics

Göttingen (PhD) → Durham → AIP

MUSE

- Data Reduction Pipeline
- Commissioning
- Board
- GTO PI and Col



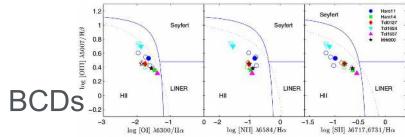


Science

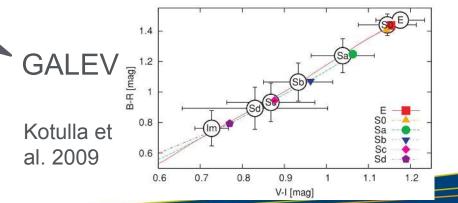
- Tidal Dwarfs
- Starburst Galaxies
- Evolutionary Synthesis
- Interacting Galaxies



Antennae (NGC 4038/39) MUSE GTO

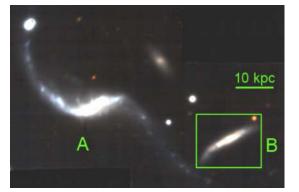


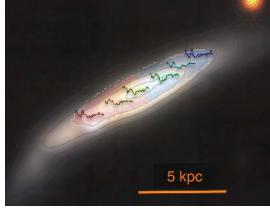
Cairós, Caon, & Weilbacher 2015

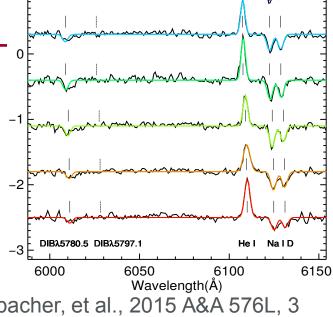


Recent Results

Dentist's Chair: Diffuse Interstellar Band





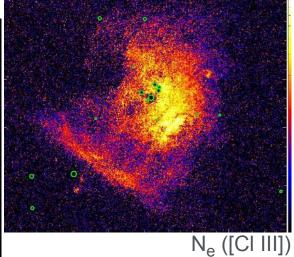


Monreal-Ibero, Weilbacher, et al., 2015 A&A 576L, 3

Orion Nebula with MUSE







Weilbacher, et al. \rightarrow arXiv:1507.00006

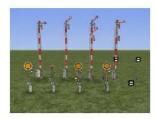
Matthias Winker

Something about me ...

1988 -1991 Profession









1998: Dipl.-Ing.









2010: MSc







professional experience till today ...













Interests of work

- you
- your working environment
- the future development of AIP

Who is this men ...?

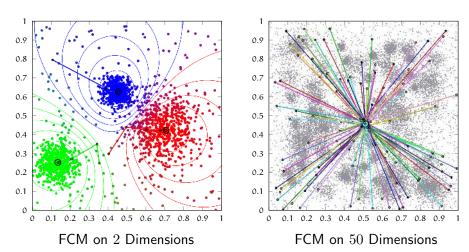




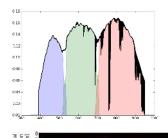


Roland Winkler Milky Way and Local Volume

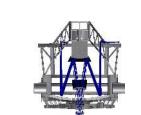
Prototype based Clustering in High-Dimensional Feature Spaces



4MOST



- Instrument simulator (TOAD)
- Engineering tool to estimate 4MOST performance
- Generate artificial detector images for data reduction



 Instrument Control Software for 4MOST/VISTA

Spectral direction inixels

- Metrology System: measure location of ~ 2400 fibres to $3\sigma = \sim 5\mu m$ accuracy
- Interface to Fibre Positioner

150

Jennifer Wojno Milky Way and Local Volume





REU - High Pressure, IR Spectroscopy 2010 University of Nevada, Las Vegas

REU - Eclipsing Binaries 2011 University of Arkansas

B.Sc. Physics 2012 University of Louisville

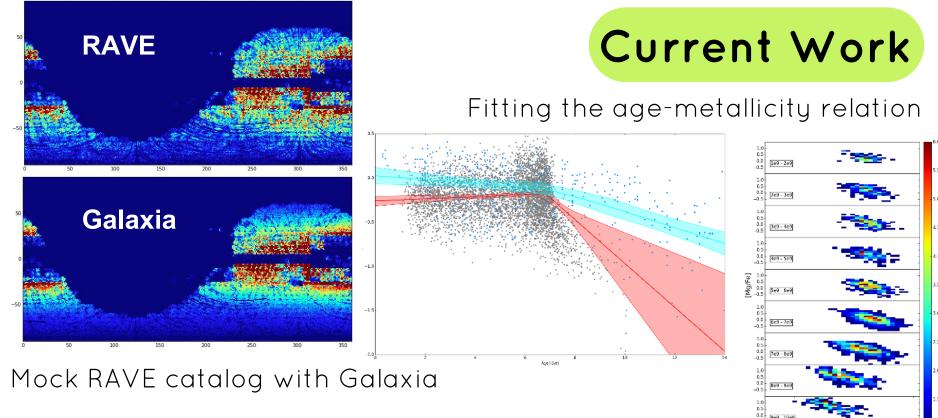
M.Sc. Physics - Astronomy & Astrophysics **Thesis:** "Dust Properties of LBGs at z~2" 2014 University of Louisville



Research Interests:

- Galaxy formation/evolution
- Galactic Archaeology
- Milky Way models
- Stellar populations
- Ages of field stars

Big Picture: RAVE age-metallicity-velocity relations



Future Plans

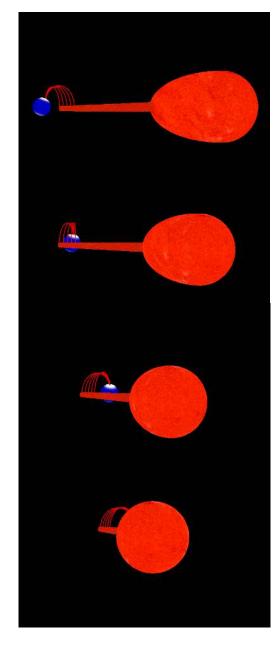
General procedure for generating mock catalog data from a given survey selection function

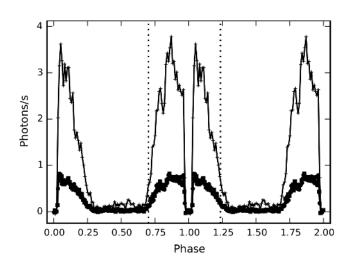
Using APASS photometry + RAVE spectral data (derived parameters) to determine distances + ages of stars by isochrone fitting

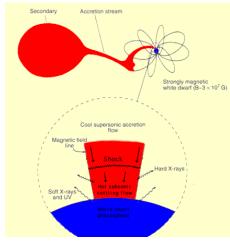
Hauke Wörpel Galaxies

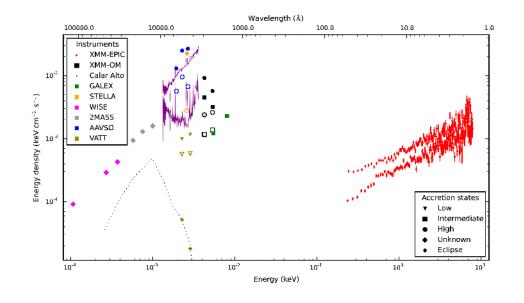


9 Jul 2015 Hauke Wörpel









Marina Zajnulina innoFSPEC

Who I am

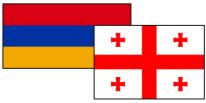
- Orginally from Kazakhstan
 - Yes, Kazakh is the state language in Kazakhstan
 - No, I don't speak Kazakh
 - The capital of Kazakhstan is Astana (since 1997)



- Studies of Physics and Mathematics at
 - Technical University Berlin
 - University of Strathclyde Glasgow
- Spare time: Slavonic Studies at the Humboldt University
 - Russia
 - Ukraine





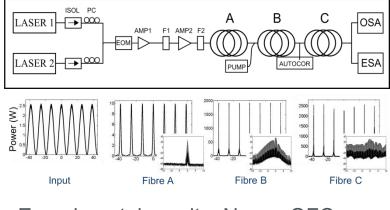


AIP: PhD Studies since May 2012

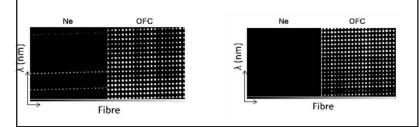
09.07.2015 / Jamboree 1

Generation of Optical Frequency Combs in Optical Fibres

 Setup for generation of OFC for calibration of low- and medium resolution astronomical spectro-graphs:

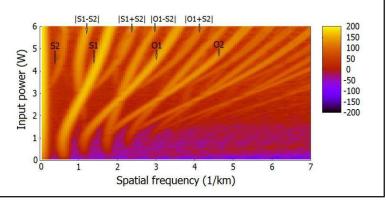


- Experimental results: Ne vs. OFC
- Taken with a MUSE-type spectrograph in the region 780-820 nm



My tasks: Numerical Studies

- Coherence properties of the optical pulses in all three stages
- Compression effectiveness in first and second fibre stage
- Figure of Merit of the first and second fibre stages
- Pulse pedestal content in the first and second fibre stages
- Understanding of the optical pulse evolution in fibres A and B



09.07.2015 / Jamboree

Mirko Krumpe Galaxies