

2nd COSMOLOGY SCHOOL

Kielce, Poland
11-24.07.2016

Summary

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- 43 x 1.5 hour lecture units = 86 -> ~90 lecture hours
- Equivalent to an intensive one semester course with 3 lectures per week
- Main focus: observational cosmology and extragalactic astrophysics (which are, actually, difficult to separate)

Aims

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- Intensive course in modern observational cosmology and extragalactic astrophysics, covering a broad spectrum of subjects
- Interactions between students and lecturers: so that you could meet leading world specialists in different fields, discuss directly and make contacts with them
- Integration: some years (or tens of years) from now you will be leading world specialists yourself – now you are making foundations for the future scientific collaborations

•Lectures: theoretical
introduction to cosmology

•Lectures: observational
aspects of cosmology and
extragalactic astrophysics

•Public talk

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•Students'
•sessions

•Lectures: numerical
simulations

•Workshops:

•Numerical simulations
•VO
•SED fitting

Theory

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• L. Sokolowski: the basic issues of theoretical cosmology: between theoretical physics, mathematics, astronomy... and philosophy.

- 1. What constitutes an explanation in cosmology?
- 2. How do we test validity of our explanations?
- 3. Are the notions from physics adequate for cosmology?
- 4. Is the knowledge of the Universe as a whole as firm as is the laboratory physics?

Observations: cosmology

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- G. de Zotti: CMB analysis and cosmological landscape after Planck
- M. Bilicki: Galaxy surveys and tools to analyze them: past, present state and future
- J. Krelowski: Distance measurements in cosmology
- A. Rozanska: Cosmology from X-ray observations
- M. Biesiada: Cosmology with strong lensing

Cosmology: between simulations and observations

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- W. Hellwing: Simulated Universes and tools to analyze them
- R. van de Weijgart: Cosmic Web

Observations: cluster and galaxy formation and evolution

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- E. Panko: Galaxy clusters
- M. Hanasz: Galaxies: the role of the magnetic field
- S. Boissier Galaxy chemical evolution - Star formation laws - Galactic outskirts
- V. Buat Linking stellar and dust emission – Galaxy spectral components
- D. Burgarella Galaxy spectra - Star formation in galaxies
- T. T. Takeuchi: Galaxy formation
- M. Bicci: Gravitational waves

Workshops

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- W. Hellwing: numerical simulations // Gadget
- H. Heintz: Virtual Observatory and its tools
- K. Malek, D. Burgarella, V. Buat: SED fitting // CIGALE

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Public outreach

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- M. Jamrozy: “Wszechswiat, ktorego nie widac” (Invisible Universe) – in Polish
- Visit to the university planetarium and observatory

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Proceedings

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- The speakers will receive a request for their contributions with the details soon (and the information will appear at the School's web page)
- Will be edited as the issue of the Proceedings of the Polish Astronomical Society, listed by ADS
- Should be ready and printed early next year
- Please make sure that you have given us a valid postal address so that you can receive them

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Proceedings

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- The talks are (and will be) available from the School's web page – they contain a wealth of information (more than you now remember)
- If you have any photos or materials you would like to share with others – please send them to the School mail address

July 2017: 3rd Cosmology School Krakow (Poland) (?)

- Similar focus (observational cosmology)
- Lectures + workshops
- Some of them similar to this time but overall there should be **a lot of different content**
- Hopefully: worth coming even if you participated this School

Idea: dedicated CIGALE (SED fitting)

2-day workshop

This fall?

If interested, contact Kasia Malek or
myself.

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To wrap up...

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•Round table of lecturers... sadly, almost all predicted it and will be gone by tomorrow.

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To wrap up...

- Round table of lecturers... ->
- Exam!

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To wrap up...

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- Round table of lecturers... ->
- Exam! (no, I am not going to do that, and you were all great anyway!)

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To wrap up...

- Round table of lecturers... ->
- Exam! ->
- Round table of participants?

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To wrap up...

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•Round table of lecturers... ->

•Exam! ->

•Round table of participants? I guess you would not be happy either.

To wrap up...

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- Round table of lecturers... ->
- Exam! ->
- Round table of participants? ->
- Free discussion with a free question to you (and if you can write the answers down, it would be most helpful to us)

Discussion (tomorrow
morning: coffee
waiting for us at 9 am)

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- Did the material presented meet your expectations?
- What was new to you and what did you already know before?
- Which parts would you like to have extended or treated more in detail?
- What are, in your opinion, the most important subjects for the future of the observational cosmology?
- Did the School help you to refine your vision of your scientific future or provided you new tools for your work?