ASTROSTATISTICS

III INPE Advanced Course on Astrophysics
Astrostatistics

Invited Lecturers

Tom Loredo - Cornell University
Bayesian Statistics: a primer

Hedibert Lopes - University of Chicago
Bayesian Statistics: techniques and implementation

Eric Feigelson - Pennsylvania State
The Frequentist Approach for Astrostatistics

Esther Salazar - Universidade Federal do Rio de Janeiro
Hands-on Activities

Advisory Committee

Dani Gamerman- IM-UFRJ - Brazil
David Weinberg - The Ohio State University - USA
Devinder S. Sivia - St.John's College Oxford - UK
Jogesh Babu - Pennsylvania State - USA
Laerte Sodré Jr - IAG - University of São Paulo - Brazil

Local Organizing Committee

Carlos Alexandre Wuensche
Flávio D'Amico
Francisco Jablonski
José Carlos Neves de Araujo

CAPES FAPESP DAS Divisão de Astrofísica SAB

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Phone - +55 (12) 3945 7200

Rationale

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The 3rd edition of INPE's Advanced School in Astrophysics has Astrostatistics as its theme. Simply put, Astrostatistics deals with particularities of Statistics in the realm of Astronomy: huge amounts of data, a variety of data coming from different parts of the electromagnetic spectrum (and even outside it), different forms of data and applications demanding responses to real-time events.

As in so many other fields of research, Astrostatistics progressed together with the advances in the numerical computing technologies. The free-fall trajectory of prices of computers in the last 20 years, particularly the personal ones, made possible calculations in seconds that once took thousands of brain-hours of work in camp-sized facilities. The spread in the use of computer power is still in its beginnings if we observe the world as a whole. In the astronomical context, the recent experience of virtual observatories adds new challenges and opportunities to the context of Astrostatistics.

The 3rd INPE Advanced School in Astrophysics offers the Brazilian astronomical community (specially PhD students) an excellent opportunity of exposition to the latest tools developed both in the classical context of statistics as in the one that makes extensive use of simulations to model physical phenomena.

The above statistics approaches applied to astrophysics will be addressed at INPE's III Advanced Course on Astrophysics by a team of renowned lecturers:

Dr. Thomas Loredo combine data analysis with theoretical astrophysics testing astronomical models and theories using Bayesian statistics, particularly in high energy astrophysics and cosmology. His work focuses on problems that can benefit from development of new statistical methodology, and largely adopts the Bayesian approach to statistics. Recently, his work has also addressed statistical issues arising in the study of extrasolar planets and analysis of the distribution of trans-Neptunian objects (including Kuiper belt objects). Tom has been the principal investigator for a NASA-sponsored project developing a statistical inference package using the Python computing language. Dr. Loredo has been a lecturer in the “Summer School in Statistics for Astronomers & Physicists” organized by the “Center for Astrostatistics” of the Pennsylvania State University.

Hedibert Freitas Lopes conducts research in Markov Chain Monte Carlo techniques and Sequential Monte Carlo methods applied, for example, to time-series models; modeling time-varying covariance of multivariate time series through latent factor analysis; Choleski decomposition and other factorizations; dynamic models and Bayesian inference; and computation. He is mainly interested in the implementation of the Bayesian paradigm to solve real large-scale problems. His research highlights the importance of model uncertainty and how it can be measured and accounted for based on modern computational statistics schemes.

Dr. Eric Feigelson wrote his dissertation at Harvard University under the supervision of Nobel Prize winner Riccardo Giacconi. He joined the Astronomy & Astrophysics faculty at Penn State in 1983 where he is now Professor. He has studied various topics in X-ray astronomy, focusing on its implications for the formation and early evolution of stars and planets. He also has a long-standing collaboration with statisticians to improve astronomical data analysis. He was a John Parker Fellow at Harvard, shared two NASA Group Achievement Awards and Rossi Prize, received an NSF Presidential Young Investigator Award, and a Department certificate for distinguished teaching. He has led the astronomy undergraduate and public outreach programs at Penn State, and co-founded its Center for Astrostatistics. He has coauthored over 170 refereed articles and 5 books in X-ray astronomy and statistics. Dr. Feigelson has been also a lecturer in the "Summer School in Statistics for Astronomers & Physicists" organized by the Center for Astrostatistics at the Pennsylvania State University.

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Program

The conference will take place in São José dos Campos from September 14-18, 2009, at the auditorium Fernando de Mendonça of the Laboratório de Integração e Testes of the Instituto Nacional de Pesquisas Espaciais.

I - Bayesian Statistics: a primer (Tom Loredo)

II - Bayesian Statistics: techniques and implementation (Hedibert Lopes)

III - The Frequentist Approach for Astrostatistics (Eric Feigelson)

IV - Hands-on (Esther Salazar - IM-UFRJ)

Invited Lecture: Particle Learning: a General Framework for Bayesian Computation (Hedibert Lopes)

*Registration: Monday 8:00
**Opening session: Monday 8:30*

Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
09:00 - 10:15	III	I	I	II	II
10:15 - 10:45			COFFEE-BREAK		
10:45 - 12:00	I	III	III	II	Invited Lecture
12:00 - 14:00			LUNCH		
14:00 - 15:15	I	III	II	III	-
15:15 - 15:45			COFFEE-BREAK		
15:45 - 17:00	IV	IV	-	IV	-

How to reach the auditorium (map)

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Lectures

Lectures
Bayesian Statistics: techniques and implementation
Hedibert Lopes

Lectures

Bayesian Statistics: a primer
Tom Loredo

Lecture 1 - 2
Lecture 3
Lecture 4

The Frequentist Approach for Astrostatistics
Eric Feigelson

Lecture 1
Lecture 2
Lecture 3
Lecture 4
Lecture 5
Lecture 6

Hands-on activities
Esther Salazar

Lecture
Activities

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ASTROSTATISTICS

Program

Participants

Participants

Alexandre Zabot
Anderson Ribeiro
Antonio C. Guimarães
Barbara Heliodora
Beethoven Santos
Bernardo Borges
Camila Novaes
Carlos Alexandre Wuensche
Carlos Molina
Claudia Vilega Rodrigues
Clovis Peres
Cristiane Godoy Targon
Denise Castro
Dennis Bessada
Deonisio Cieslinski
Eder Martioli
Edgard Freitas Diniz Evangelista
Eduardo S. Pereira
Erika A. de Souza
Fernanda Gomes de Oliveira
Fernando Roig
Flávia Luzia Jasmim
Flavio D'Amico
Francisco Jablonski
Gabriel Caminha
Gustavo Bragança
Hektor Monteiro
Henrique Xavier
Jaziel Goulart Coelho
J. Manuel Islas
João Victor Silva
Jorge Weber
José Carlos Neves de Araujo
José Fernando de Jesus
Josue Trejo
Julio César Tello Gálvez
Julio Daniel Blanco Zárate
Karleyne Silva
Leonardo Almeida
Letícia D. Ferreira
Luis Ricardo Tusnski
Manuel Antonio Castro Ávila
Marcelo Emilio
Marcelo Leal-Ferreira
Márcio Eduardo da Silva Alves
Marcos Diaz
Marcos Tadeu dos Santos
Maria Aldinez Dantas
Maria Elidaiana da S. Pereira
Maria Isela Zevallos Herencia
Mariana Chinaglia
Mariana Penna Lima
Marildo Pereira
Marina Trevisan
Mauro Alves
Michele Ferraz Figueiro
Odylio D. Aguiar
Patricia Novais
Patrick Silveira
Patrick Wöhrle Guimarães
Paulo Penteado
Pedro da Cunha Ferreira
Pedro Henrique
Philippe Gouffon
Priscilla Polido
Rafael Amorim
Rafael Kimura
Rafael Mário Vichietti
Ramon Giostri
Reinaldo Rosa
Rodolfo Camargo de Freitas
Rodolfo Valentim
Rodrigo de Sousa Gonçalves
Rodrigo Holanda
Ronaldo Batista
Rubens Marinho
Sandro Vitenti
Tereza Satiko Nishida Pinto
Thiago Silva
Tiago Ribeiro
Tiago Ricci
Vinicius Busti
Walter Santos
Wiliam Santiago Hipolito Ricaldi

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III INPE ADVANCED COURSE ON ASTROPHYSICS

ASTROSTATISTICS

Bayesian Statistics: a primer
Tom Loredo
Cornell University

Bayesian Statistics: techniques and implementation
Hedibert Lopes
University of Chicago

The Frequentist Approach for Astrostatistics
Eric Feigelson
Pennsylvania State

São José dos Campos - SP

BRAZIL

September 14 - 18, 2009

http://www.das.inpe.br/school

LOC:

Carlos Alexandre Wuensche

Flávio D'Amico

Francisco Jablonski

José Carlos Neves de Araujo

Oswaldo Duarte Miranda

SOC:

Dani Gamerman
IM-UFRJ / Brazil

David Weinberg
The Ohio State University / USA

Devinder S. Sivia
St. John's College Oxford / UK

Jogesh Babu
Penn. State / USA

Laerte Sodré Jr.
IAG-USP / Brazil

Ministério da Ciência e Tecnologia

BRASIL UM PAÍS DE TODOS GOVERNO FEDERAL

São José dos Campos (SJC)

With an estimated population of 589.000 inhabitants in 2004, SJC is, presently, the largest and most important city of the Paraíba Valley, in the northeastern part of São Paulo state. Its area was first occupied in 1590 by a cattle farm, where today is the borderline of São José dos Campos and Jacarei cities. It received the status of town in April 22, 1864 and received its present name in 1871.

SJC is one of the largest industrial and technological centers of the country and the home of well known research centers, such as the Instituto Nacional de Pesquisas Espaciais (INPE), the Comando-Geral de Tecnologia Aeroespacial (CTA), the Instituto Tecnolï¿½gico da Aeronï¿½utica (ITA), the Universidade do Vale do Paraï¿½ba (UNIVAP), and the Universidade Estadual Paulista "Julio de Mesquita Filho" (UNESP). Sï¿½o Josï¿½ dos Campos is also the home of EMBRAER (Empresa Brasileira de Aeronï¿½utica), the 3rd largest aircraft company in the world, the largest and second oldest GM (General Motors) plant in Brazil, started 1958, and many other technological and electronics industries, totaling more than 700 companies.

Due to its privileged geographical position, between the mountain chains of Mantiqueira and Serra do Mar, SJC is very close to excellent leisure opportunities at the beach or up in the mountains. It is located between the metropolitan areas of Rio de Janeiro, 300 km North, in Rio de Janeiro state, and São Paulo (80 km South), the two largest consumption and production centers in the country.

How to get to SJC from São Paulo International Airport (Guarulhos)

By Car

From São Paulo International Airport to São José dos Campos take the Rodovia Presidente Dutra (Highway São Paulo-Rio de Janeiro. Distance: 79 Km = 50 Miles) or take the Rodovia Ayrton Senna (Rodovia dos Trabalhadores), drive 65 km and then merge to Rodovia Presidente Dutra driving more 23 km until São José dos Campos-SP (total of 88 km).

By Bus - Company Pássaro Marrom

Telephone numbers: (011) 6445-2505, 6445-3783 and 6445-3811
(012) 3921-9892

Place: Terminal of Passengers 1 - wing A - Arrival Floor
Terminal of Passengers 2 - wing D - Arrival Floor

Schedules of exits from the Airport to São José dos Campos:
08:00 - 13:00 - 17:15 - 22:00

Schedules of exits from São José dos Campos to the Airport:
06:30 - 10:30 - 15:30 - 20:00

Ticket Price: R$ 15,00 = US$ 7,00

By Taxi - Special Taxis

Telephone Number: (011) 6440-7070.

Place: Terminal of Passengers 1 - wing B - Arrival Floor
Terminal of Passengers 2 - wing C - Arrival Floor

Service: 24h00.
Estimated Price: R$ 200,00 = US$ 90,00

See the road map

Region Main Attractions

São José dos Campos

Parque da Cidade (City Park)
Former house of the Olivio Gomes family. The architectonic design is signed by Rino Levi and landscaping is by Roberto Burle Marx. The park has a great nature area, lake and artificial island, besides tracks for hiking.

Santos Dummont Park
Located in the neighborhood of Vila Adyana, close to downtown São José dos Campos, the park has fish-breeding lakes and lots of birds and has 2 elementary schools. The park houses a unit of the third prototype of the Bandeirante airplane, used by the old National Aeronautics and Space Commission, presently, INPE - National Institute for Space Research. Its located on Rua Eng. Prudente Meirelles de Moraes, 1000.

Banhado (Marsh)
The marshes of São José dos Campos are one of the most beautiful sights of the city, a true postcard. Its green area can be seen form many sites. Locals like to enjoy sunsets there.

Campos do Jordão

Parque Estadual de Campos do Jordão (Campos do Jordão State Park)
Created in 1941, the park, also known as "Horto Florestal", offers tracks to hiking, snack-bar, ice-cream parlor, chapel, greenhouse, gymnastics area and picnic areas, restaurant, and souvenir shop. Open daily (from 8 a.m. to 8 p.m.). Address: Av. Pedro Paulo.

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Hotels

Hotels
The prices below have been quoted in May 10th. Please confirm the values at the booking.
The event has no arrangement with any hotel.
Hotel Lareira

Phone: (12) 3921-9829
Rua Ademar Guedes de Oliveira, 193 - Vila Piratininga (próximo a Rodoviária Nova)
Single room: R$ 53,00
Double room: R$ 78,00
Triple room: R$ 105,00

Hotel Varanda

Phone: (12) 3922-3676
Rua Itororó, 206 - Jardim Paulista (próximo a Rodoviária Nova)
Single room: R$ 50,00
Double room: R$ 73,00
Triple room: R$ 95,00

Hotel Pousada Bandeirante

Phone: (12) 3922-7506
Avenida dos Astronautas, 1021 - Jardim da Granja(está localizado na mesma avenida do INPE)
Single room: R$ 25,00
Double room: R$ 40,00
Triple room: R$ 60,00

Hotel Plaza **

Phone: (12) 3947-7669
Rua Presidente Bernardes, 33 - Jardim Paulista
Single room: R$ 59,00
Double room: R$ 79,00
Triple room: R$ 89,00

Hotel San Marco **

Phone: (12) 3922-5244
Avenida Dr. Adhemar de Barros, 457 - Vila Adyana
Single room: R$ 55,00
Double room: R$ 75,00

Hotel Urupema ***

Phone: (12) 3921-1599
E-mail: hotelurupema@hotelurupema.com.br
Avenida Nove de Julho, 1037 - Vila Adyana
Single room: R$ 79,00
Double room: R$ 95,00

Hotel Lisboa

Phone: (12) 3921-8155 - (12) 3921-3564
E-mail: hotelisboa@hotellisboa.net
Rua Major Antônio Domingues nº 344 - Centro
Single room: R$ 48,00 (circulador de ar)
Single luxe room: R$ 60,00 (frigobar e ar condicionado)
Double room: R$ 70,00

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ASTROSTATISTICS

Registration Form

This course is mostly intended for researchers, postdocs, and graduate students in physics/astronomy and related areas, particularly those enrolled on a PhD program. Second year graduate students (in a MSc program) will be also considered.

The registration deadline is July 24th, 2009.
Acceptance will be decided by the Local Organizing Committee and communicated by August 7th.
The final list of participants (with possible substitutions/replacements) will be posted in this website by August 28th, 2009.

The number of participants will be limited to a maximum of 200 due to the venue capacity. We do not have funds to assist in travel expenses (TO and WITHIN Sao Jose dos Campos). We plan on providing some financial support to the researchers and post-doctorates from São Paulo. However, that is dependent on the support we receive from the funding agencies. Those will be notified about it by August 15th.

Registration fee

The fee includes a congress kit, coffee breaks, and attendance certificate.

Graduate students	R$ 150,00
PhD	R$ 200,00

he payment must be made by a check to "Sociedade Astronômica Brasileira", which should be sent to:

A/C Marina Freitas
INPE ADVANCED SCHOOL - ASTROSTATISTICS
Sociedade Astronômica Brasileira
Rua do Matão, 1226 - Cidade Universitária CEP 05508-900 - São Paulo - SP

Foreigners can pay the fee in cash during the event.

Cancellations

Until August 20, 2009, you will be refunded the amount paid.
After August 21, 2009, no refund will be made.

Registration is closed

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INPE Advanced Course - I

In Honor of Prof. Jayme Tiomno

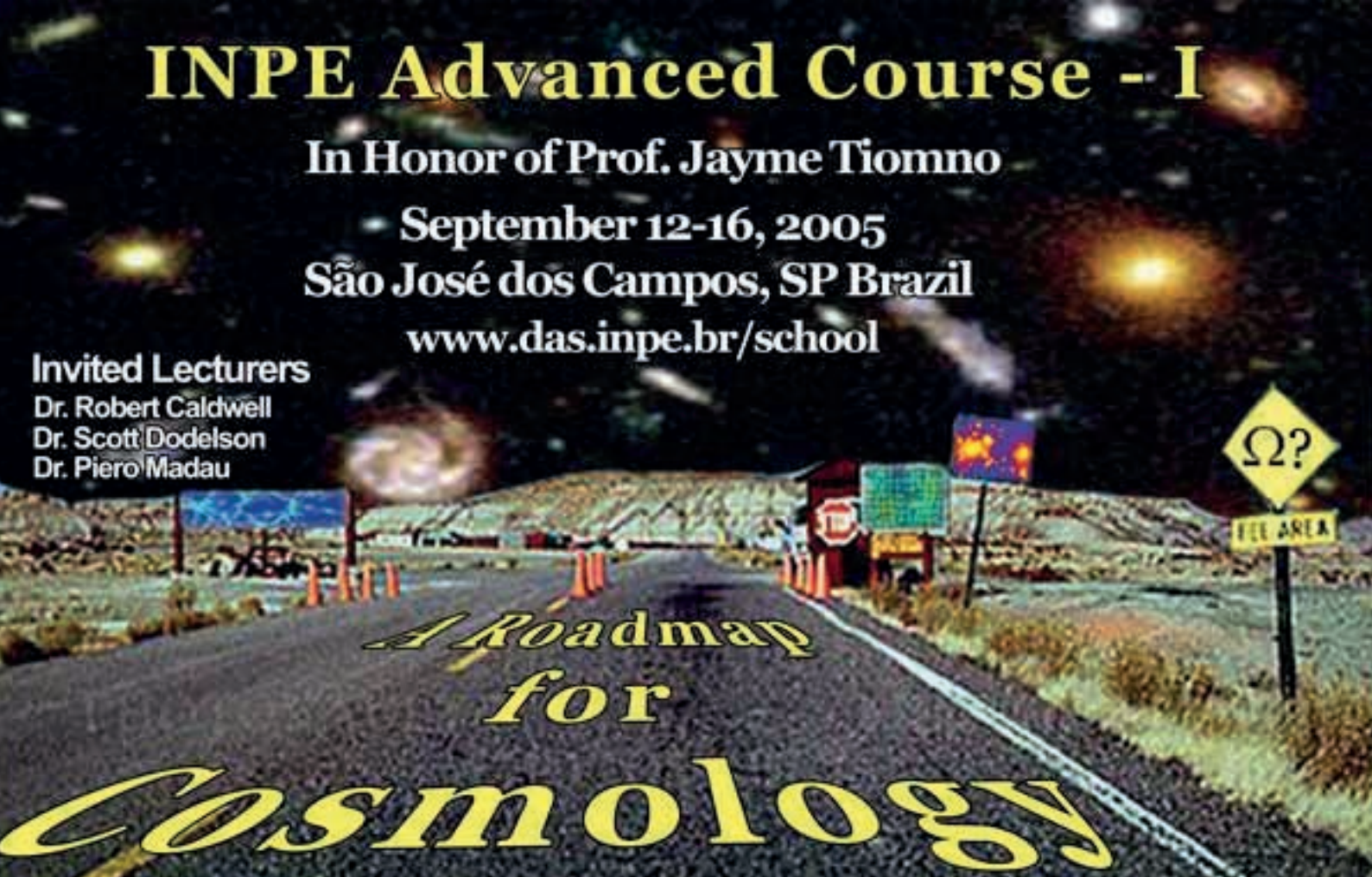
September 12-16, 2005

São José dos Campos, SP Brazil

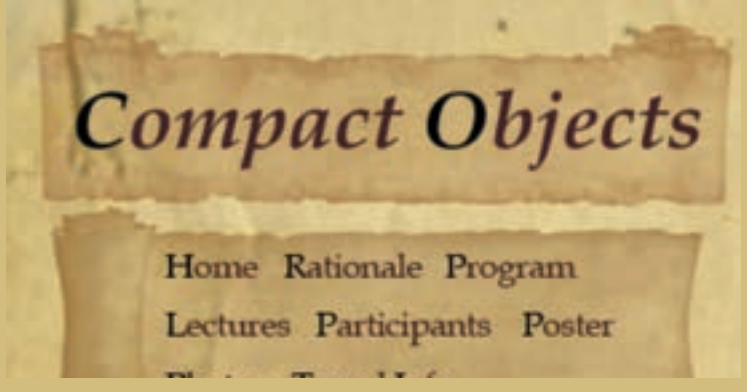
www.das.inpe.br/school

Invited Lecturers

Dr. Robert Caldwell
Dr. Scott Dodelson
Dr. Piero Madau



A Roadmap for Cosmology



INPE Advanced Course - II
Compact Objects

September 10-14, 2007
São José dos Campos, SP Brazil

Invited Lecturers

Brian Warner
Cataclysmic variables

Kostas D. Kokkotas
Generation mechanisms of gravitational waves

Feryal Özel
Compact objects

Ronald A. Remillard
Accretion processes in neutron stars and black holes

Advisory Committee

N. Andersson - University of Southampton - United Kingdom
L. Bildsten - University of California at Santa Barbara - USA
D. Blair - University of Western Australia - Australia
A. Bruch - Laboratório Nacional de Astrofisica - Brazil
M. Coleman Miller - University of Maryland - USA
V. Ferrari - Università di Roma "La Sapienza" & INFN/Roma - Italy
J.A. de Freitas Pacheco - Observatoire de la Cote d'Azur - France
C. Hellier - Keele University - United Kingdom
J. Horvath - University of São Paulo - Brazil
J. McClintock - Harvard-Smithsonian Center for Astrophysics - USA
R. Rothschild - University of California at San Diego - USA
R. Sunyaev - Max Planck Institute for Astrophysics - Garching - Germany

Local Organizing Committee

O. D. Aguiar, J. C. N. de Araujo, J. Braga, F. D'Amico, F. J. Jablonski, O. D. Miranda, C. V. Rodrigues