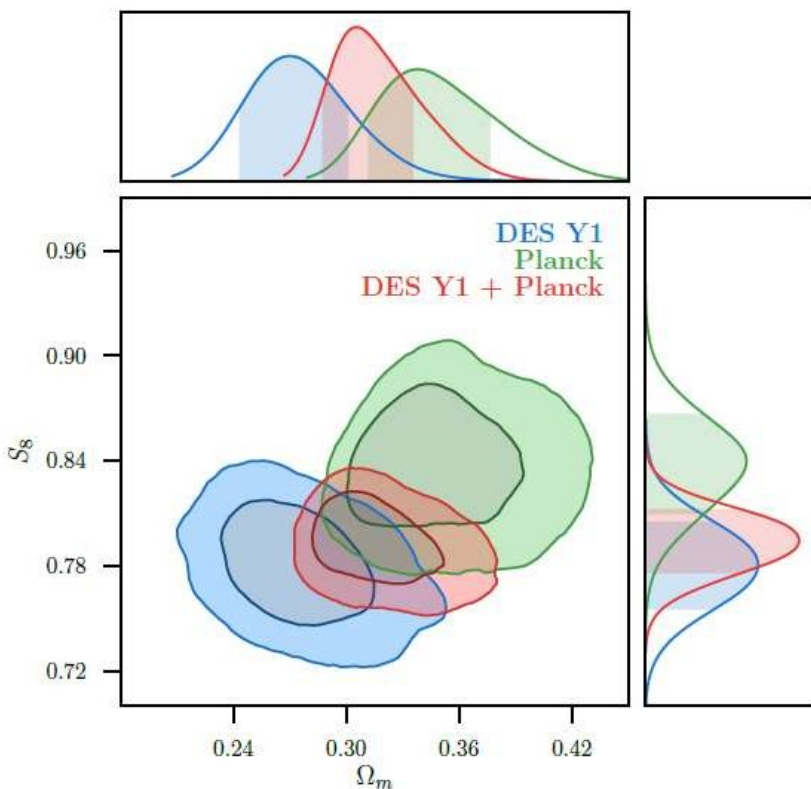


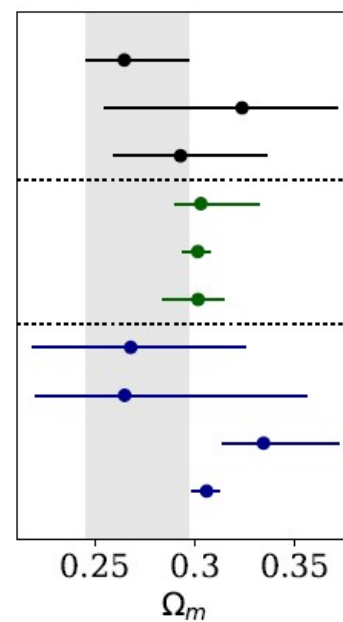
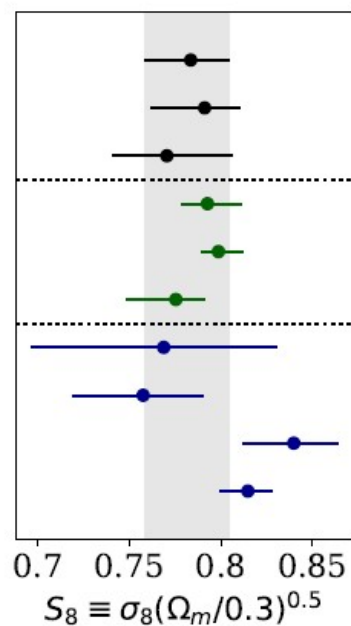
Dark Energy Survey Y1 Results

Rogério Rosenfeld
IFT-UNESP & ICTP-SAIFR

Ioav's Fest – UFRJ 28/09/2018



DES main results:
 combining 3x2pt correlation function
 1708.01530
 Agreement with LCDM
 No tensions with Planck



DES Y1 All

DES Y1 Shear

DES Y1 $w + \gamma_t$

DES Y1 All + Planck (No Lensing)

DES Y1 All + Planck + BAO + JLA

DES Y1 All + BAO + JLA

DES SV

KiDS-450

Planck (No Lensing)

Planck + BAO + JLA

New Physics in Space: the growth of a community

Rogério Rosenfeld
IFT-UNESP & ICTP-SAIFR

Disclaimer: I have not worked with loav yet – but it's never too late!

loav's Fest – UFRJ 28/09/2018

Cosmology in Brazil started roughly in the 1970's

Jayme Tiomno – PhD in Princeton in 1950 in Particle Physics with Wheeler and Wigner

Tiomno spends 2 years back in Princeton in 1971 (during military dictatorship) and starts working in GR

Mario Novello starts a Cosmology and Gravitation group at CBPF in 1976

Ruben Aldrovandi at IFT also in the 1970's

Tiomno and Novello formed a generation of cosmologists – all theoretically inclined – not much data at the time

Novello starts the series “Brazilian School on Cosmology and Gravitation” in 1978

It is still going on: 17th edition happened this year at CBPF (40th anniversary)

IV ESCOLA 4th SCHOOL 1984

Initial value problem positivity of energy I. Choquet-Bruhat

Formation of large scale structure in the Universe F. Lizhi

Self-consistent Cosmology an inflationary alternative to the Minkowskian quantum vacuum E. Gunzig

Lectures on semi classical Quantum Gravity M. Castagnino

Five lectures on Particle Physics and Cosmology E. W. Kolb

Topics at the interface of Particle Physics and Cosmology D. N. Schramm

Stochastic methods in Cosmology M. Novello

SCIENTIFIC COMMITTEE

M. Novello (CBPF/BR); R. Aldrovandi (IFT/BR); M. C. S. Rodrigues (CBPF/BR);

J. M. Salim (CBPF/BR)

This is probably when I first met loav!

loav was starting his PhD on Cosmological Inflation (under R. Chanda's supervision)

I was finishing my MSc on Axions

In 2002 Reuven Opher starts a series of workshops with the aim of bringing together in an informal setting Brazilian researches from different fields related to “Physics in Space” – CMB, astrophysical plasmas, black holes, gravitational waves, dark matter, dark energy, galaxy surveys,...

I remember a talk by Ioannou on the “10 top models for dark energy”

Traditions such as the “paredão” were introduced.

Latest edition – the XIIIth - of “New Physics in Space” happened in 2016.

<http://www.ictp-saifr.org/xiii-workshop-new-physics-in-space-2016/>

XIII Workshop on New Physics in Space



Start time: November 28, 2016

Ends on: December 1, 2016

Location: São Paulo, Brazil

Venue: IFT-UNESP

Speakers:

- Michel Aguena (USP-São Paulo, Brazil)
- Odylio Denys de Aguiar (INPE-São Paulo, Brazil)
- João Braga (INPE-São Paulo, Brazil)
- Vinicius Busti (USP-São Paulo, Brazil)
- Luciano Casarini (UFES-Vitória, Brazil)
- María Benito Castaño (IFT-UNESP-São Paulo, Brazil)
- Cecilia Bertoni Martha Hadler Chirenti (UFABC-Santo André, Brazil)
- Júlio César Fabris (UFES-Vitória, Brazil)
- Breno Loureiro Giacchini (CBPF-Rio de Janeiro, Brazil)
- Luiz Filipe de Oliveira Guimarães (CBPF-Rio de Janeiro, Brazil)
- Fabio Iocco (ICTP-SAIFR/IFT-UNESP-São Paulo, Brazil)
- Ekaterina Karukes (ICTP-SAIFR-São Paulo, Brazil)
- William Couto Corrêa de Lima (UFABC-Santo André, Brazil)
- José Ademir Sales Lima (IAG-USP-São Paulo, Brazil)
- Marcos Duarte Maia (UnB-Brasília, Brazil)
- Marina Machado Cunha e Mello (UFABC-Santo André, Brazil)
- Jeff Newman (U. Pittsburgh, USA)
- Reuven Opher (IAG-USP-São Paulo, Brazil & Columbia U., USA)
- Elisabete de Gouveia Dal Pino (IAG-USP-São Paulo, Brazil)
- Miguel Quartin (UFRJ-Rio de Janeiro, Brazil)
- Davi Cabral Rodrigues (UFES-Vitória, Brazil)
- Jamerson Gillis Batista Rodrigues (UFPB-João Pessoa, Brazil)
- Ilya L. Shapiro (UFJF-Juiz de Fora, Brazil)
- Alan Maciel da Silva (UFABC-Santo André, Brazil)
- Riccardo Sturani (IIP-Natal, Brazil)
- Danilo Morales Teixeira (U. Maryland, USA)
- Manuela Vecchi (IFSC-USP-São Carlos, Brazil)
- Mariana Penna Lima Vitenti (CBPF-Rio de Janeiro, Brazil)
- Sandro Dias Pinto Vitenti (CBPF-Rio de Janeiro, Brazil)



I believe these workshops were instrumental in what became a phase transition:

the engagement of the cosmology Brazilian community in international observational collaborations.

Many theorists became involved in these collaborations!!

loav had an important role in this process.

SDSS, DES, J-PAS, DESI, EUCLID, LSST, LIGO, BINGO, and many others

It is a complex process and we are still learning...

I remember when I decided to become involved in DES – it was in 2007 in the day of Ribamar's PhD defense (I was in the committee).

I was in Ioav's office after the defense and I decided to follow his example in joining DES...

In 2009 Opher started a new series of workshops: “Challenges of New Physics in Space” – this was a bona fide international workshop, bringing outstanding researchers to Brazil.

Its latest edition – the VIth – was in 2014 – organized by Ioav.

After retiring Opher asked me and Ioav to help organizing these 2 series of workshops.

In my opinion our community has matured and is now more balanced between theory and observations.

How to keep this balance?



Speaking of tradition and singing:

The Dark Matter Song

Rueven Opher parody of James Taylor's
"You've got a Friend"

JUST CALL FOR DARK MATTER

when you're down and **PERTURBED**
and you need some **DARK MATTER**
and nothing no **NOTHING IS GRGLING**
close your eyes and think of **INFLATION**
and soon it will be there
to **EXPAND** even your closest **HORIZON**

→ You just call for **DARK MATTER**
and you know, wherever it is,
it'll come running, to help you again
STELLAR OR GALACTIC FORMATION
all you have to do is call,
and it'll be there, you've got **DARK MATTER**

Is the sky above you
is full of **UNCONDENSED MATTER**
and the **MICROWAVE BACKGROUND**

is all around you
Keep your head together
and call for **DARK MATTER**
and soon you'll see it **STARBURSTING**
at your door