Impulsionando
novas
descobertas

SOAR, Gemini, OPD +

Eder Martioli
LNA/MCTI

LNA Laboratório Nacional de Astrofísica
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO
GOVERNO DO BRASIL
DO LADO DO POVO BRASILEIRO

LNA

LNA

Impulsionando
novas
descobertas

Research Institute under the MCTI CREATED IN 1985 WITH THE MISSION :

“To foster Brazilian astrophysics through collaboration by developing and managing observational and laboratory infrastructure to enable scientific discoveries and technological innovation.”



LNA Laboratório Nacional de Astrofísica

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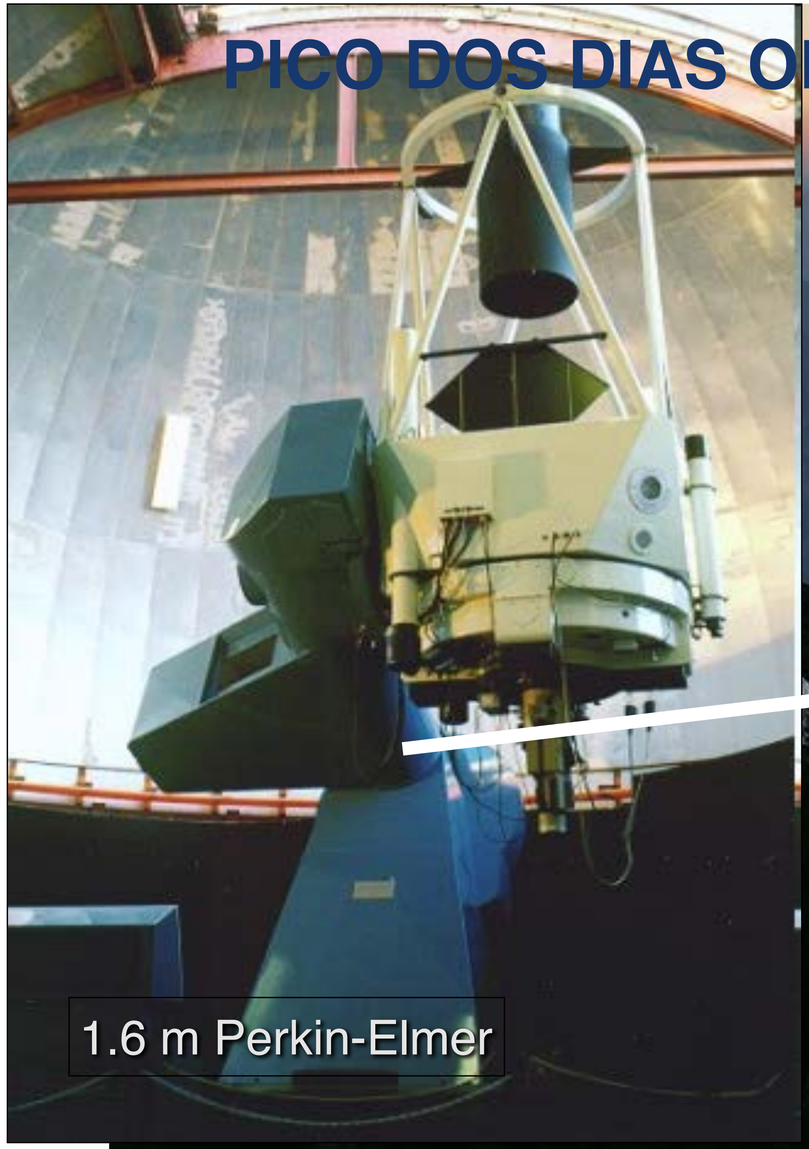
GOVERNO DO BRASIL
DO LADO DO POVO BRASILEIRO

PICO DOS DIAS OBSERVATORY (OPD), LNA/BRAZIL

PICO DOS DIAS OBSERVATORY (OPD), LNA/BRAZIL



1.6 m Perkin-Elmer

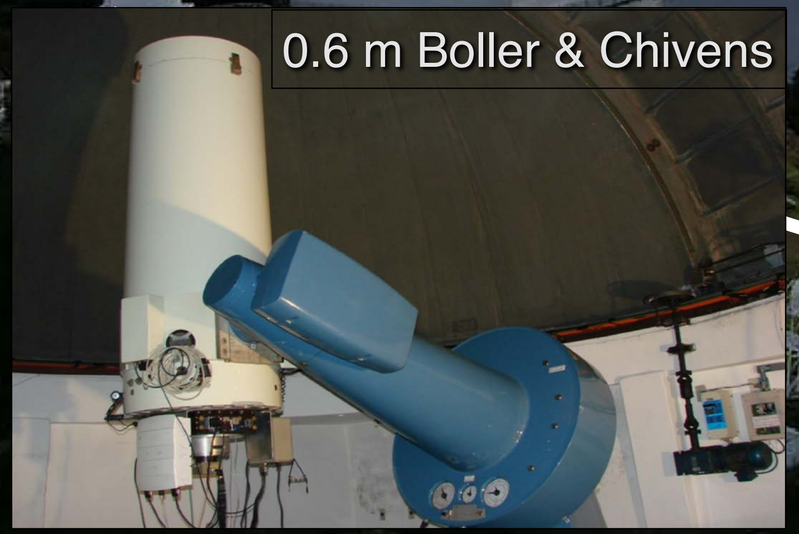
PICO DOS DIAS OBSERVATORY (OPD), LNA/BRAZIL

PICO DOS DIAS OBSERVATORY (OPD), LNA/BRAZIL

0.6 m Zeiss

PICO DOS DIAS OBSERVATORY (OPD), LNA/BRAZIL

PICO DOS DIAS OBSERVATORY (OPD), LNA/BRAZIL



PICO DOS DIAS OBSERVATORY (OPD), LNA/BRAZIL

PICO DOS DIAS OBSERVATORY (OPD), LNA/BRAZIL

PANEOS – SPACE DEBRIS

PICO DOS DIAS OBSERVATORY (OPD), LNA/BRAZIL

PICO DOS DIAS OBSERVATORY (OPD), LNA/BRAZIL

ROBO43 CDK17 Planewave

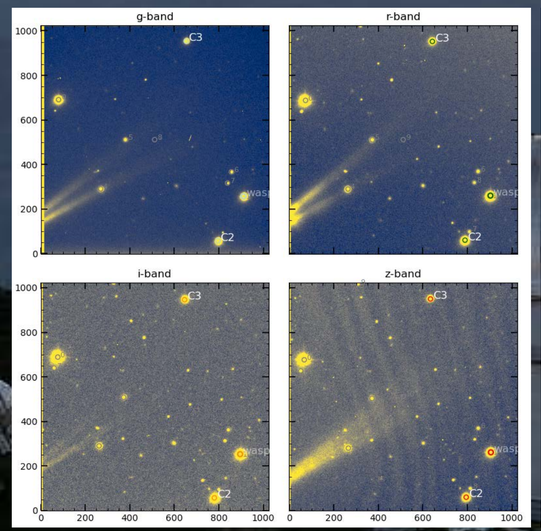
PICO DOS DIAS OBSERVATORY (OPD)

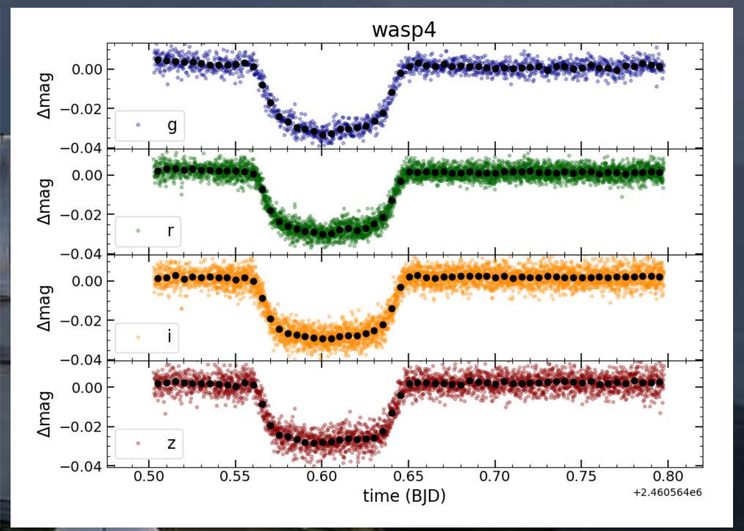
Perkin-Elmer 1.6 m

SPARC4

PICO DOS DIAS OBSERVATORY (OPD)

Transit of WASP-4 b (G8V V=12.48)





SPARC4 pipeline

Perkin-Elmer 1.6 m

SPARC4

LNA Laboratório Nacional de Astrofísica

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO

GOVERNO DO BRASIL
DO LADO DO POVO BRASILEIRO

4m SOAR Telescope

Cerro Pachon (Chile)

Fraction of the Obs. Time:

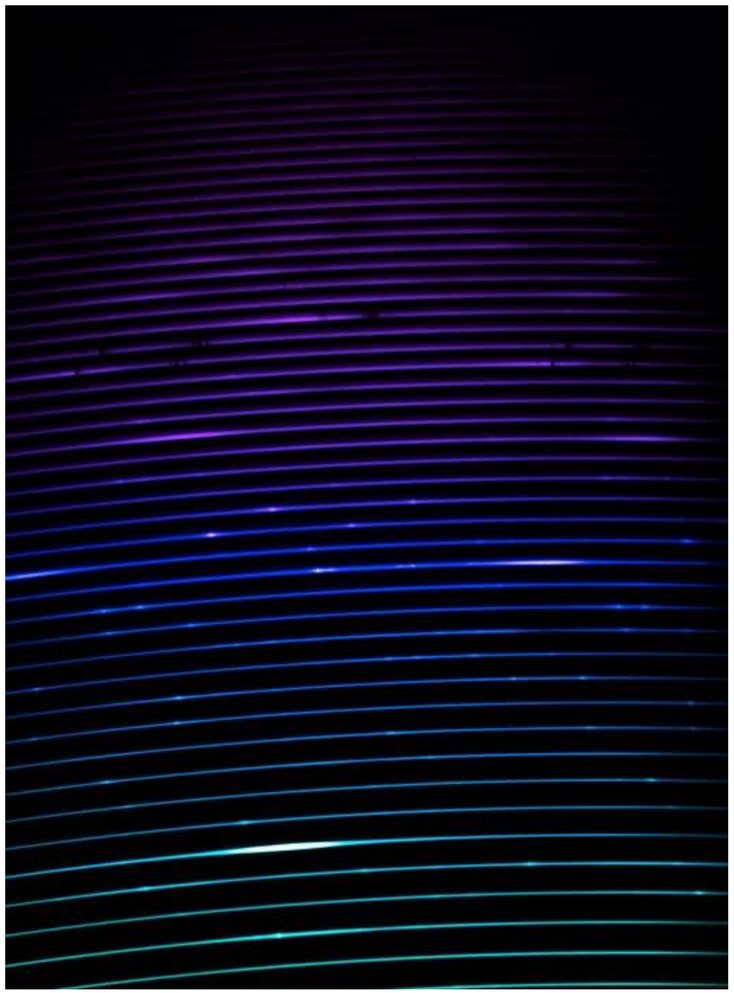
BRASIL (31%)

NOIRLab/EUA(30%)
MSU/EUA (16.5%)
UNC/EUA (12.5%)
Chile (10%)

Adaptive Optics Technology with ultraviolet laser that improves the quality of visible images

SOAR Telescope Echelle Spectrograph (STELES)

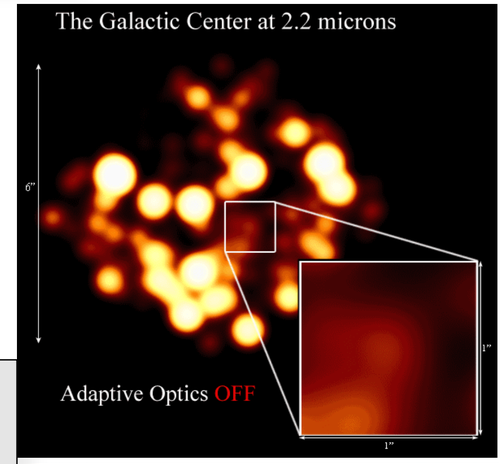
- Spectral coverage: 300-890 nm
- Resolution ($\lambda/\Delta\lambda$) = 50000



Gemini Observatory (Two 8m Telescopes)

Consortium: Brazil, EUA, Canada, Argentina, South Korea and Chile

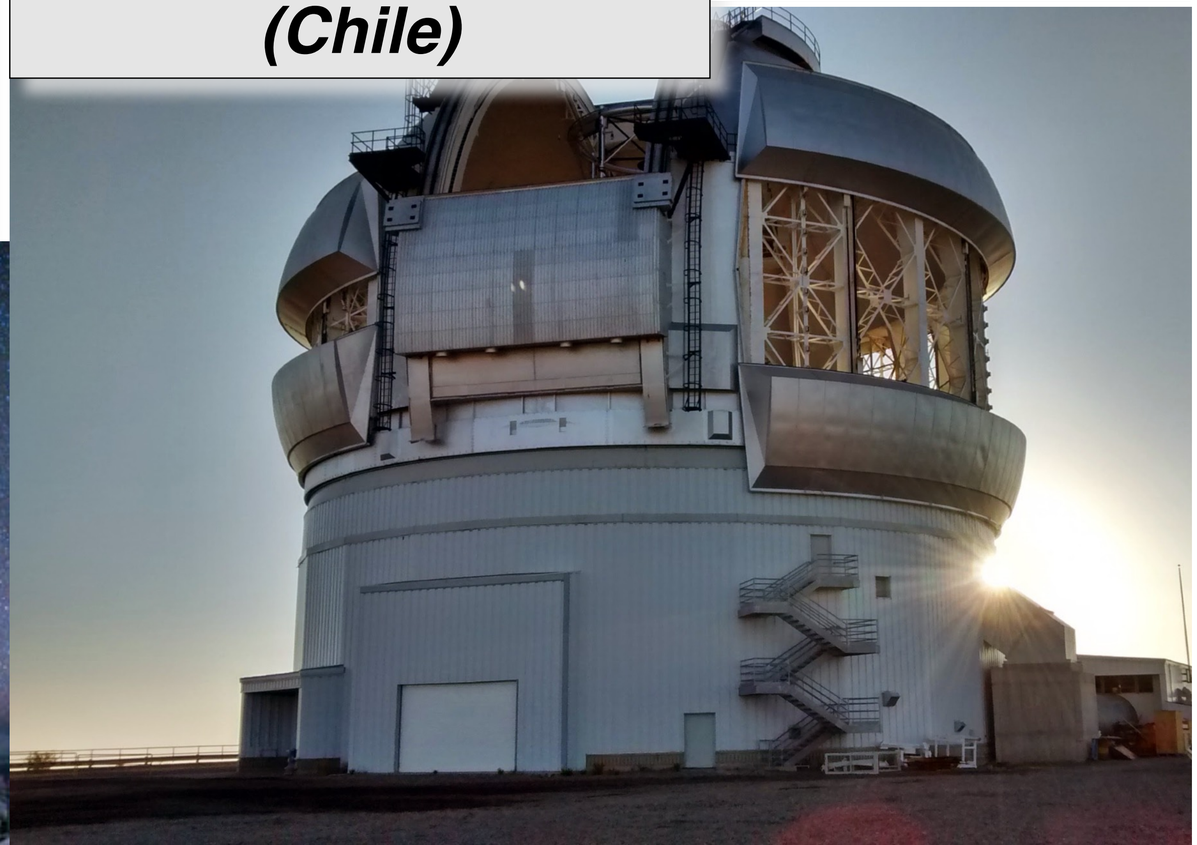
Infrared images from Gemini are as good as those from the Hubble Space Telescope



GEMINI NORTH (Hawaii/EUA)

Laser Guide

GEMINI SOUTH (Chile)



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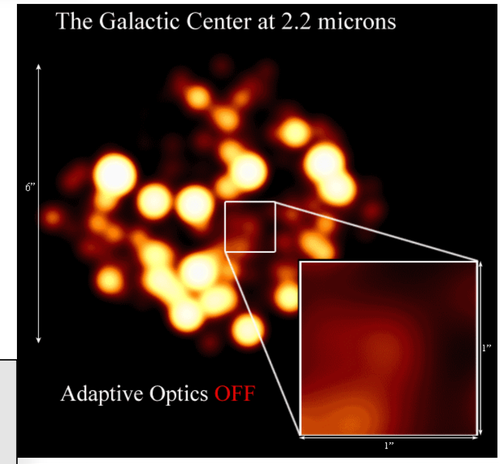
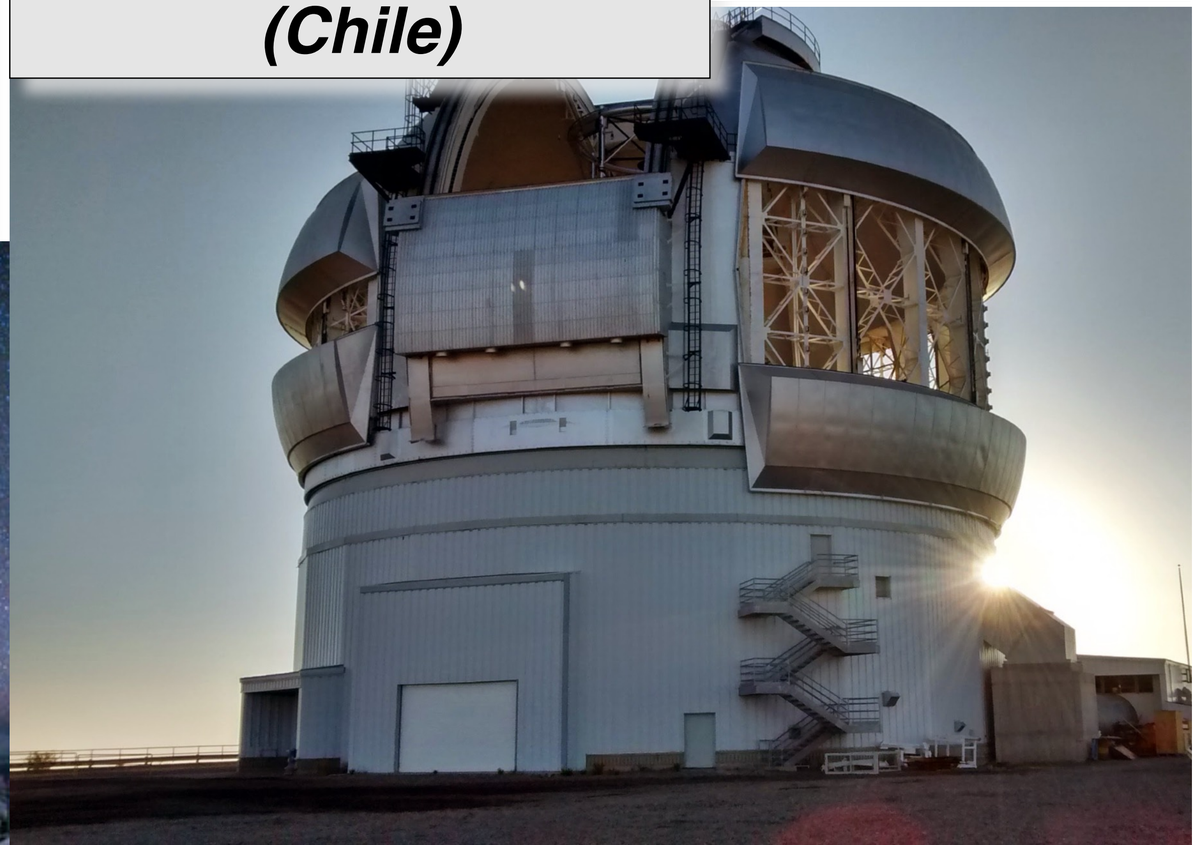
Infrared images from Gemini are as good as those from the Hubble Space Telescope



GEMINI NORTH (Hawaii/EUA)

Laser Guide

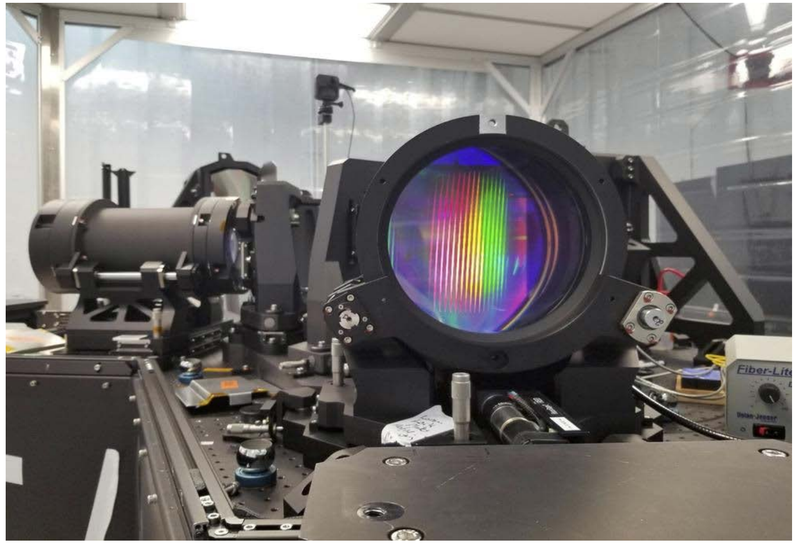
GEMINI SOUTH (Chile)

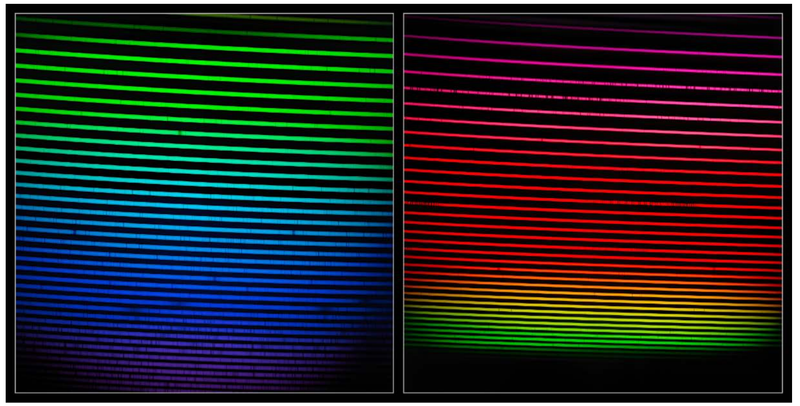


The Gemini High-resolution Optical SpecTrograph (GHOST)

- Spectral coverage: 383-1000 nm
- Dual target mode:
  Resolution (**λ/Δλ**) = 56000
- Single target mode:
  Resolution (**λ/Δλ**) = 76000
- IFUs with 1.2 arcsec
- Patrol fields of 7.5 arcmin

https://www.gemini.edu/instrumentation/ghost





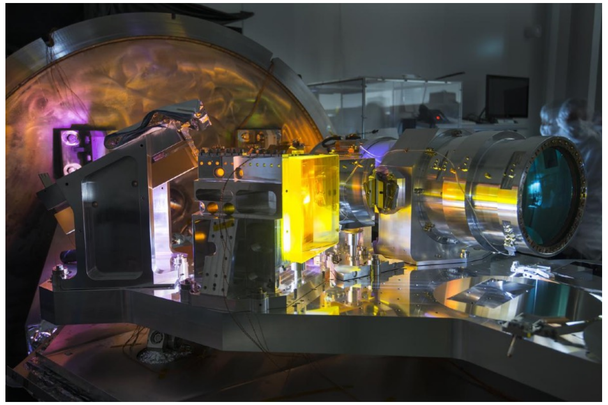
Collaboration with CFHT

CFHT 3.6m Hawaii (USA)

ESPaDOnS

MEGACAM

SPIROU



Vera Rubin Observatory

Southern Astrophysical Research Telescope (SOAR)

Gemini South

Rubin Auxiliary Telescope

LNA/ON/LINEA/RNP/LNCC/FAPESP

RubinObs/NOIRLab/SLAC/NSF/DOE/ AURA

https://rubinobservatory.org/news/rubin-first-look/rhythm-stars

https://rubinobservatory.org/news/rubin-first-look/swarm-asteroids

Laboratório Nacional de Astrofísica

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO

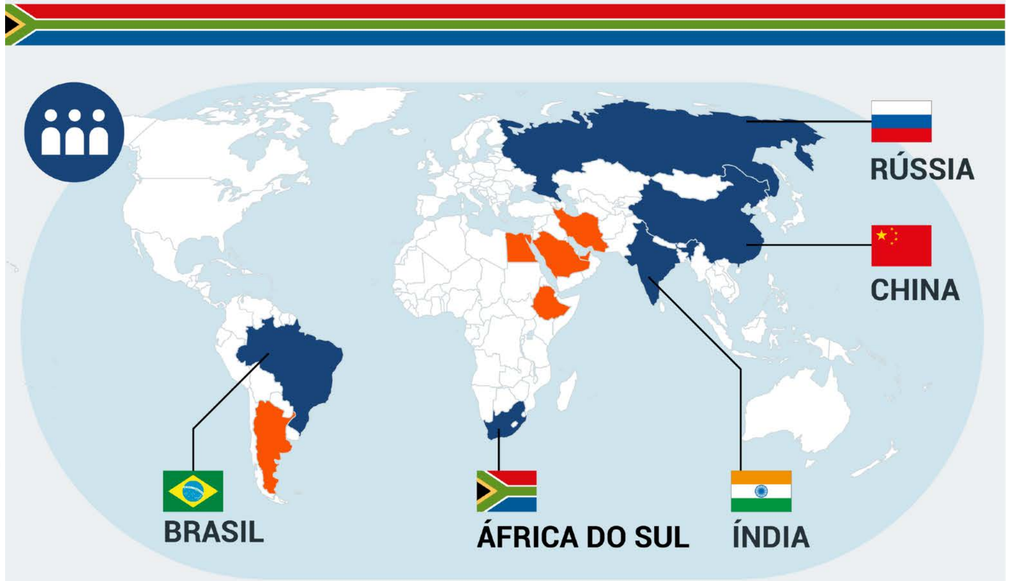
GOVERNO DO BRASIL DO LADO DO POVO BRASILEIRO

MANAGEMENT OF BRAZILIAN PARTICIPATION

FLAGSHIP PROJECT – BITDN
BRICS INTELLIGENT TELESCOPE AND DATA NETWORK

BAWG: BRICS ASTRONOMY WORKING GROUP

bloco anunciou em 24 de agosto
o início do processo de expansão



atuais integrantes	novos integrantes
Brasil	Argentina
Rússia	Arábia Saudita
Índia	Egito
China	Emirados Árabes
África do Sul	Etiópia
	Irã

fonte: Brics

PODER 360

LNA Laboratório Nacional de Astrofísica

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO

GOVERNO DO BRASIL
DO LADO DO POVO BRASILEIRO

NATIONAL REFERENCE IN ASTRONOMY

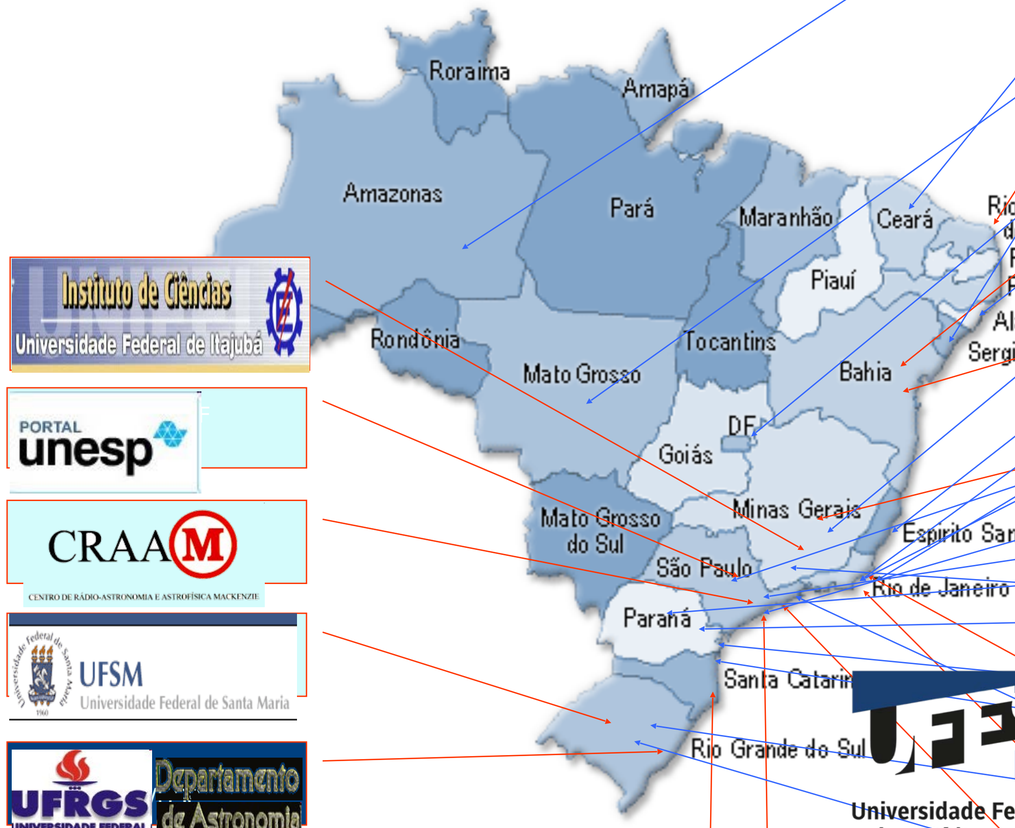
Total 1980-2025

PhD Thesis: 190
Master Thesis: 205

+ 1400 refereed publication with LNA data

+36.000 citations

~20 PCI scholarships per year



UEA
UFC
UFS
UNICID

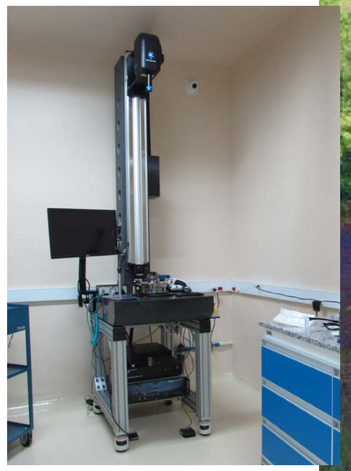
UFMT
UNB
PucPE
UFV
UFES
UERJ
Embratel
CBPF
USP SC
IAE/CTA
UNIP
UEL
UEPG
UTFPR
UNIVALI
UCS
UERGS
UNIVAP
UFCS

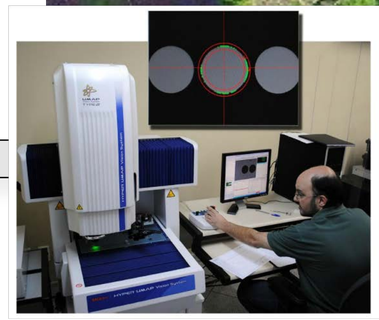
Instituto de Ciências Universidade Federal de Itajubá
PORTAL unesp
CRAAM Centro de Rádio-Astronomia e Astrofísica Mackenzie
UFSM Universidade Federal de Santa Maria
UFRGS Universidade Federal do Rio Grande do Sul — Departamento de Astronomia
Astrofísica UFSC - Brasil
DFTE Departamento de Física Teórica e Experimental UFRN - Brasil
UEFS
Universidade Estadual de Santa Cruz
ICEX UFMG
LNA
ON Observatório Nacional
UFES Universidade Federal do Espírito Santo
/UFRJ
AG USP
OV/UFRJ

LNA Laboratório Nacional de Astrofísica
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO
GOVERNO DO BRASIL DO LADO DO POVO BRASILEIRO

INFRASTRUCTURE FOR TECHNOLOGICAL SOLUTIONS

OPTICAL FIBERS, OPTICAL AND MECHANICAL METROLOGY, THIN FILMS, ELECTRONICS AND AUTOMATION, PRECISION MACHINING, THERMAL ESSAYS, CHARACTERIZATION OF OPTICAL INSTRUMENTS, ALUMINIZATION OF MIRRORS





LNA Laboratório Nacional de Astrofísica

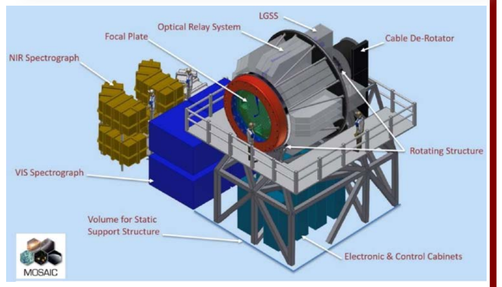
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO

GOVERNO DO BRASIL
DO LADO DO POVO BRASILEIRO

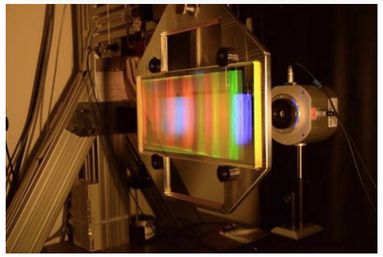
HIGH TECH EXPORT

ASTRONOMICAL INSTRUMENTATION “MADE IN LNA/BRAZIL”

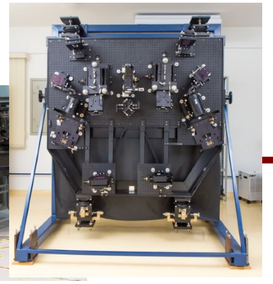
MOSAIC @E-ELT



CUBES@ESO

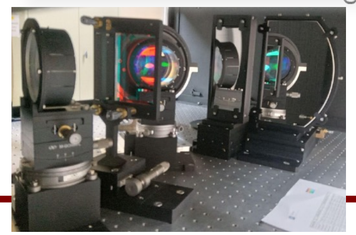


SIFS,STELES@SOAR

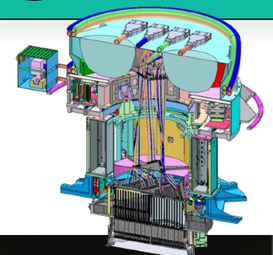


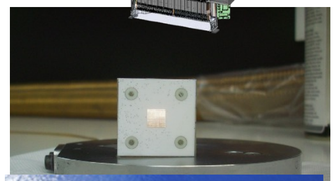
SPARC4@OPD

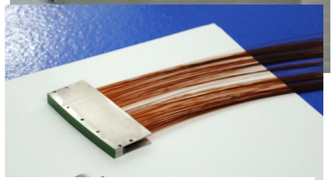
ECHARPE@OPD

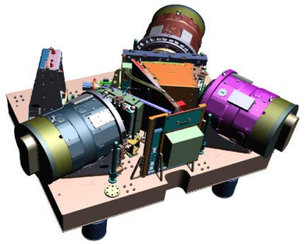


PFS @SUBARU









LNA DUNE DEEP UNDERGROUND NEUTRINO EXPERIMENT

LNA 2030 STRATEGY

EXPANSION AND MODERNIZATION OF OBSERVATIONAL AND LABORATORY INFRASTRUCTURE IN ASTROPHYSICS

LNA 2030 movie

+ 20 Mi USD FINEP, FAPEMIG, CNPq

Fupai
Alcance novos horizontes

DAC engenharia

LNA Laboratório Nacional de Astrofísica

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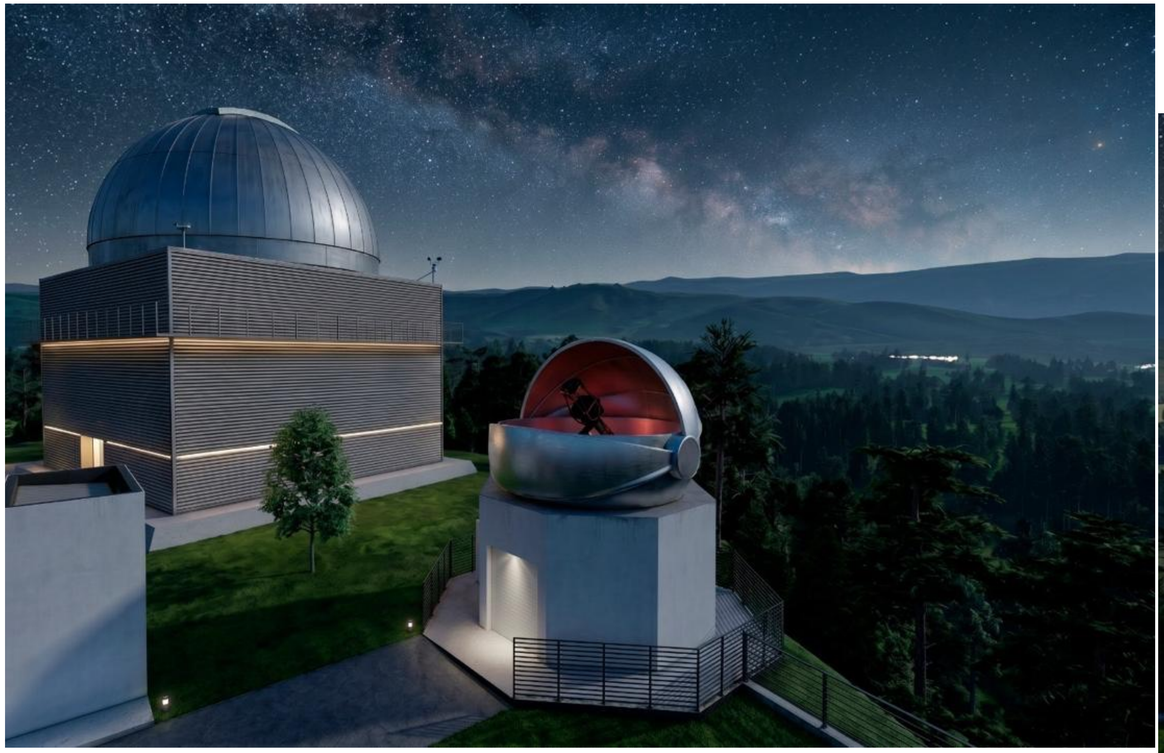
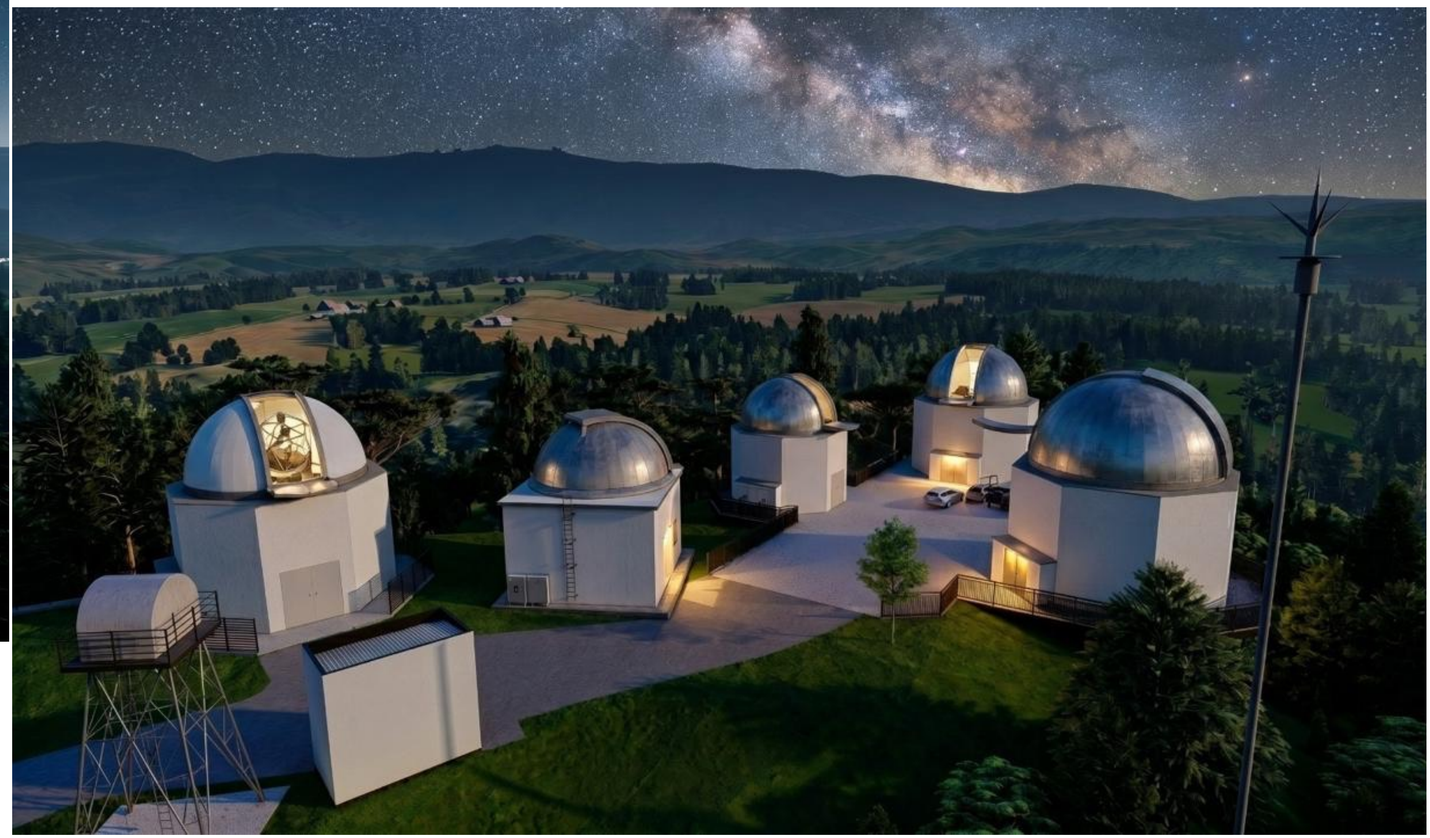
descobertas





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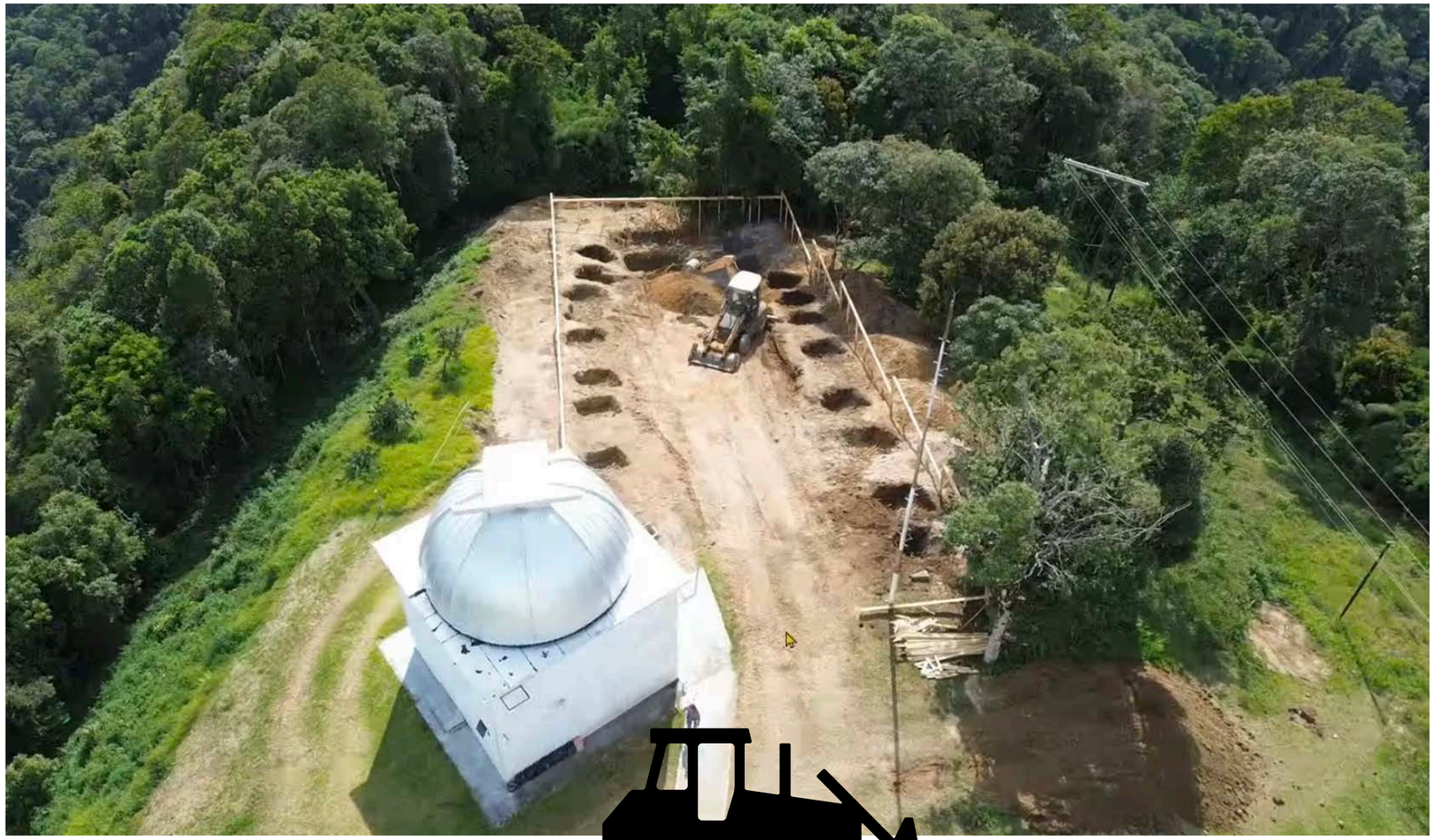

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GOVERNO DO BRASIL
DO LADO DO POVO BRASILEIRO

Thank you!

Impulsionando
novas
descobertas

Eder Martioli
diretoria@lna.br

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