



## Searching for H-alpha emitters using ZOGY

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# Summary

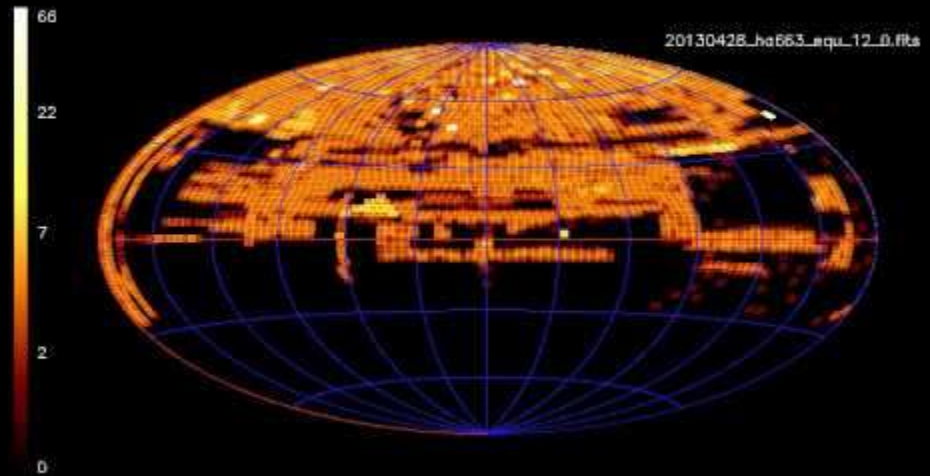
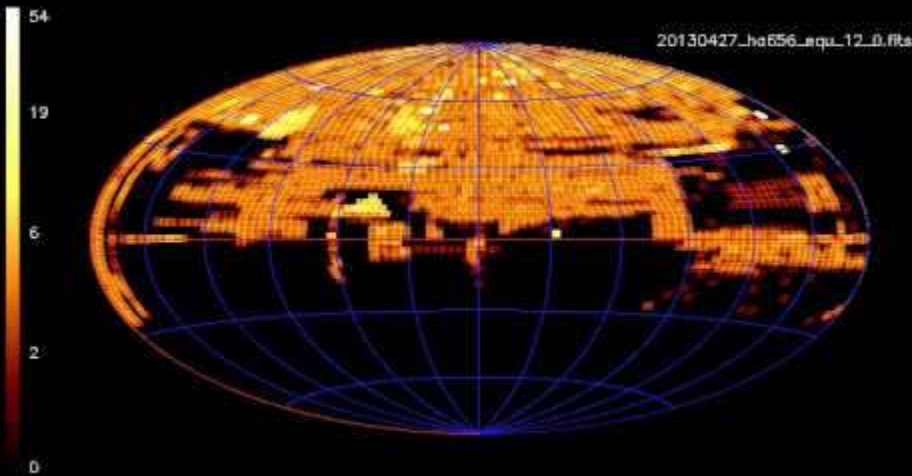
## → Research Project

- Objective
- Method
- Progress
- Future

## → Internship Updates

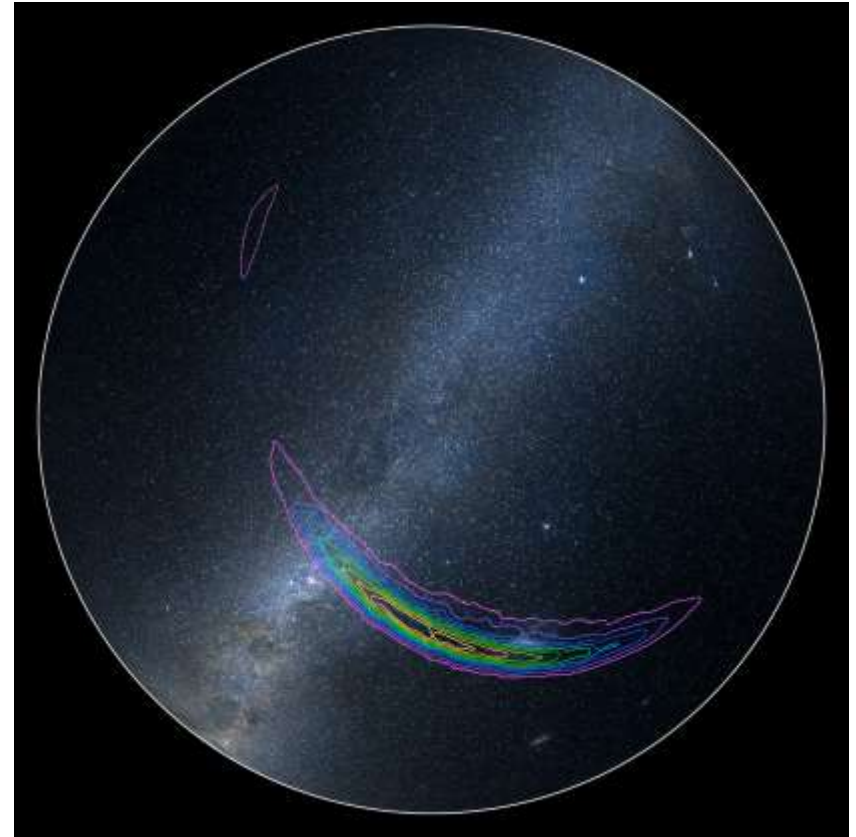


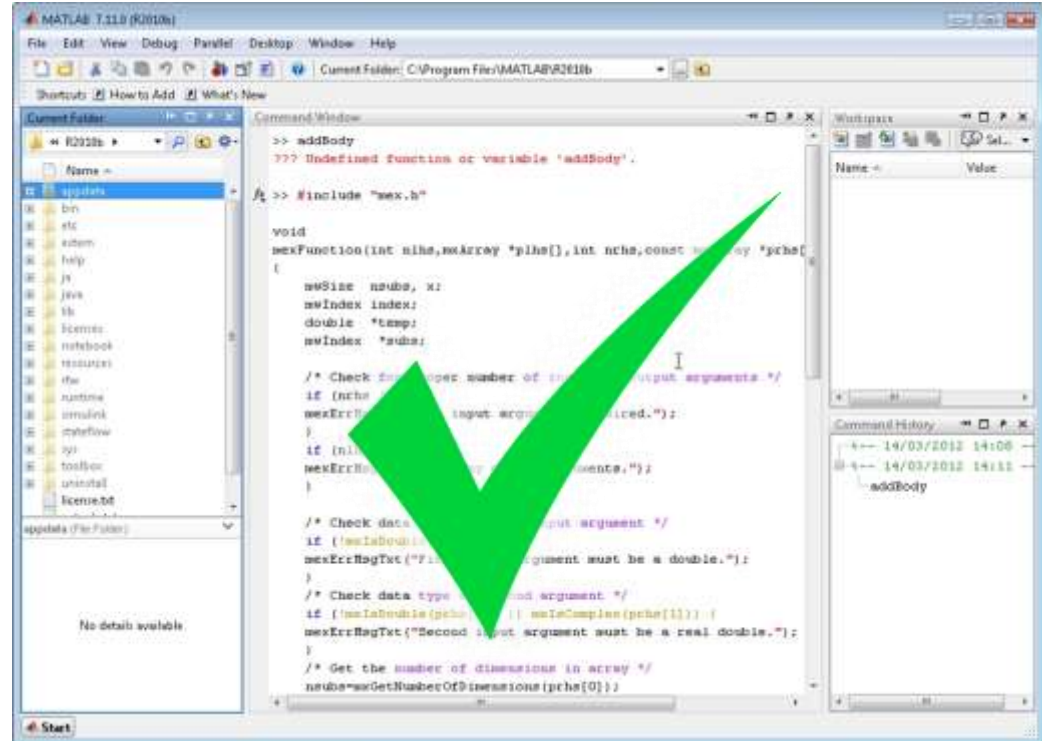
**Goal:** Search for H alpha emission in the nearby universe



## Motivations:

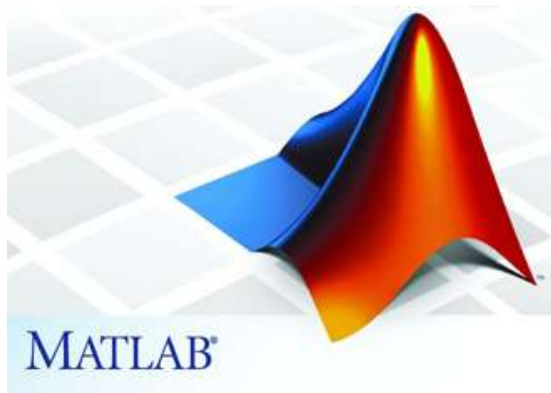
- LIGO- EM counterparts of Gravitational Waves
- ZTF- Transient follow up prioritization
- Characterize star formation rate





# Week 1: MATLAB Workshop

 python™ =

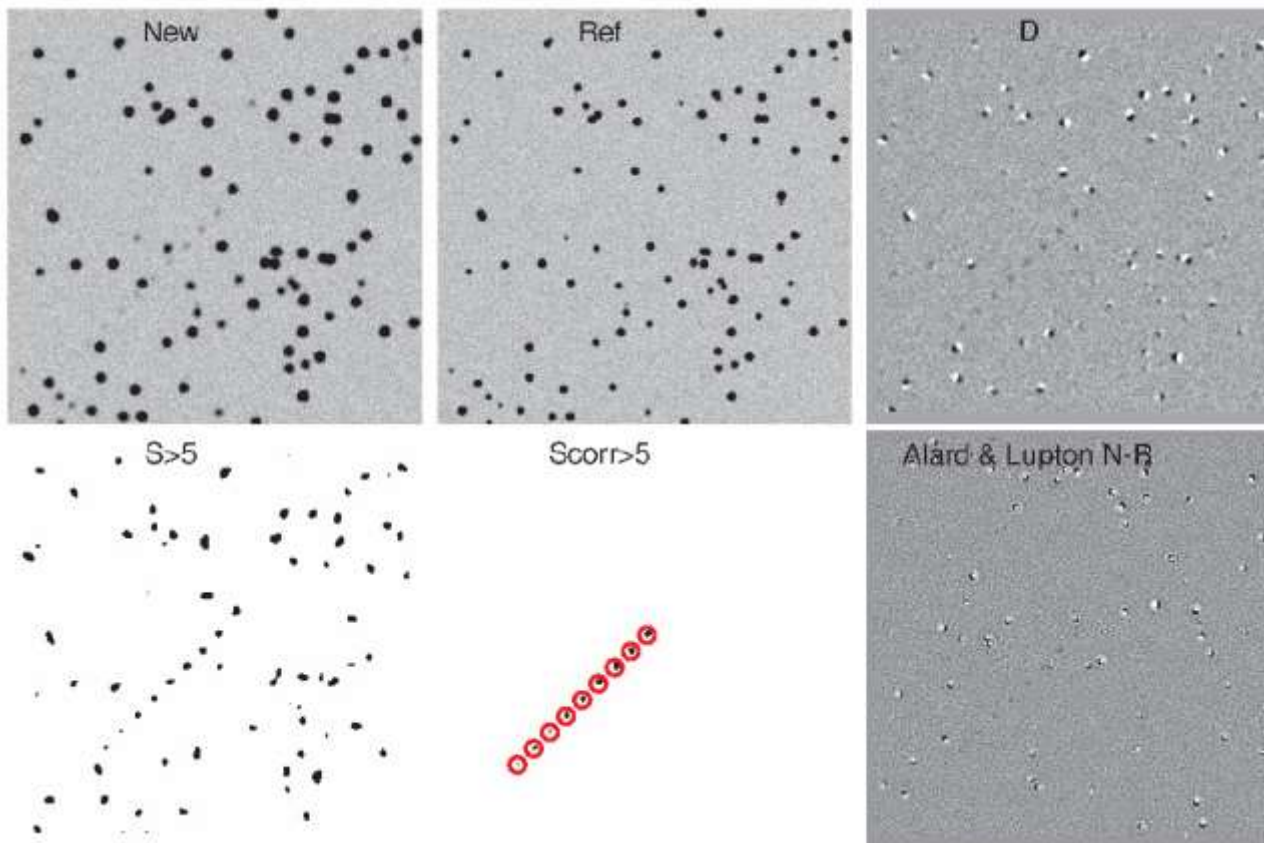


=





# Z.O.G-Y Optimal Image Subtraction



# SIM object

Properties:

```
Im: [4096x2048 double]
ImageFileName: [1x65 char]
BackIm: []
ErrIm: []
WeightIm: []
Cat: []
Co1: []
Co1Cell: []
Co1Units: []
SortedBy: []
SortedByCo1: []
Name: []
Source: []
Reference: []
Version: []
Header: {328x3 cell}
WCS: []
UserData: []
Mask: [4096x2048 uint32]
MaskDic: @def_bitmask_pipeline
PSF: []
ErrPSF: []
ParPSF: {}
CooPSF: []
```



Example:

`saturated2mask (SIMobject)`

→ Populates the mask field of that

object



Current Status:

Star removal considering astrometric noise = great!

Future Work:

Coaddition (matched filter)

Further removal of cosmic rays

Other artifacts: ghosts



# Moving Forward

Mount Laguna Observatory  
San Diego, California





### Melanie Olaes

From: San Diego State University  
To: Weizmann Institute of  
Science in Israel



Dome of the Rock, Jerusalem





### Atharva Patil

From: IUCAA, India

To: National Central University  
in Taiwan



# Atharva Patil

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L35 at Mt. Lulin





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# Thank you, GROWTH!

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מכון ויצמן למדע  
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