



Asteroseismology of intermediate-mass stars in NGC 2264 – First Results

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&

the NGC 2264 (Asteroseismology) Team



COROT NGC 2264: overview

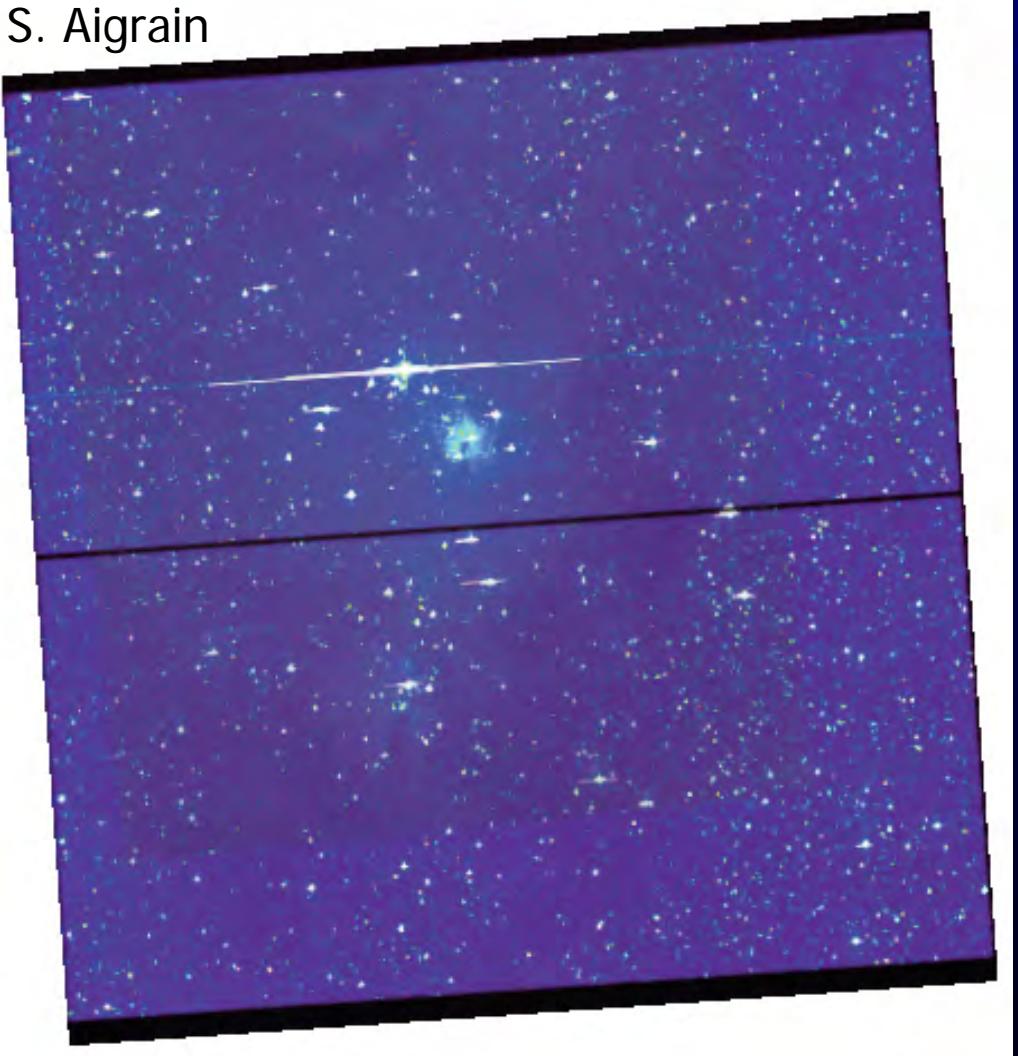
- **Study of PMS stars in NGC 2264** (F. Favata)
 - **Rotation & Activity**: G. Micela
 - **Interaction with circumstellar matter**: S. Alencar
 - **Binaries and Planetary Transits**: S. Aigrain
 - **Asteroseismology**: K. Zwintz & C. Aerts
- **Selected as SRa01**
- **Input Catalog**
 - 1824 stars
 - 136 stars from Asteroseismology-Team
 - **$10 < V < 21$ mag (+ additional “brightest” list)**



COROT NGC 2264 observations

- Exo CCD E1
- March 2008
 - $\Delta t \sim 23.4$ d
- Data: Sep. 2008
- **RA = 06:44:04.8**
DE = 09:08:45.6
- Orientation
 - Flip N-S
 - Rotate

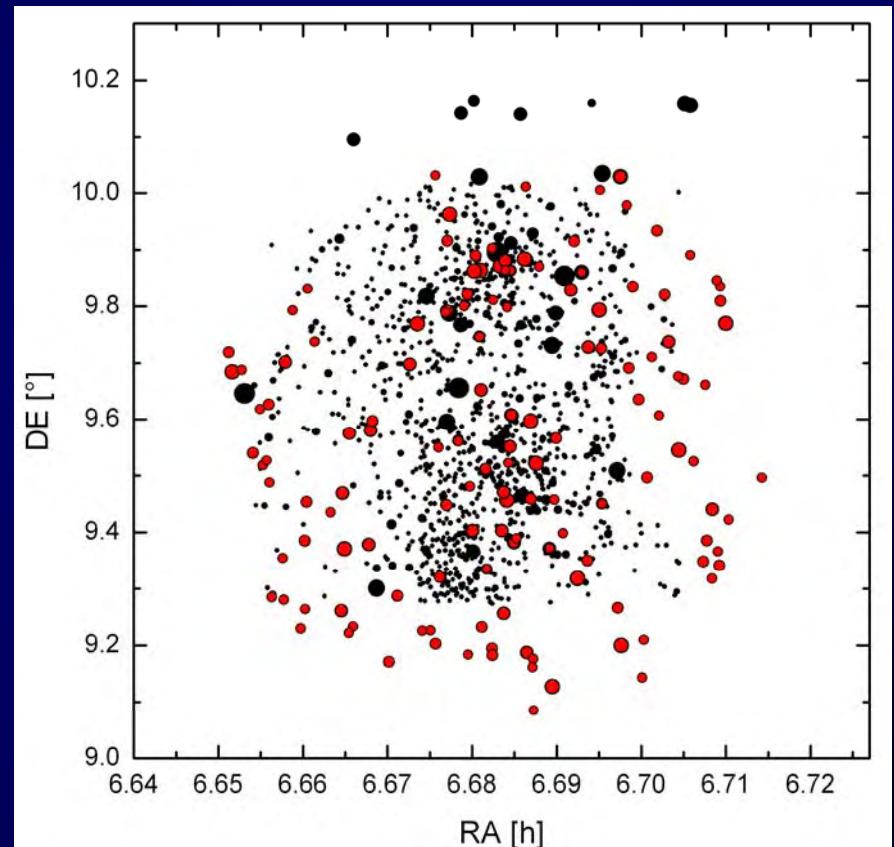
S. Aigrain





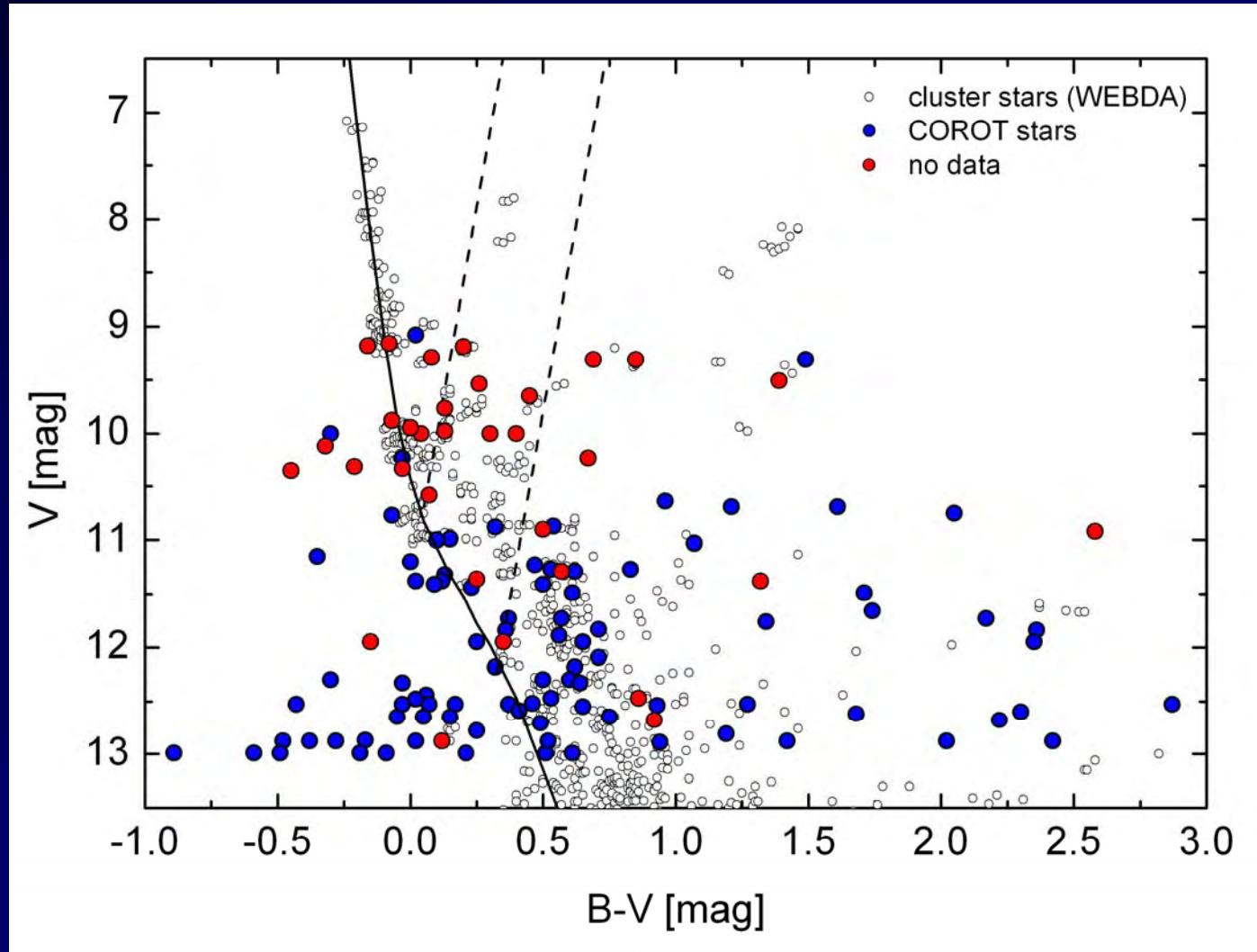
NGC 2264 COROT stars

- In total 636 stars observed
- 100 Asteroseismology Targets
- **Reduction**
 - De-stepping
 - A. Kaiser, priv. comm.
 - Frequency Analysis
 - SigSpec (Reegen 2007)





NGC 2264 CMD



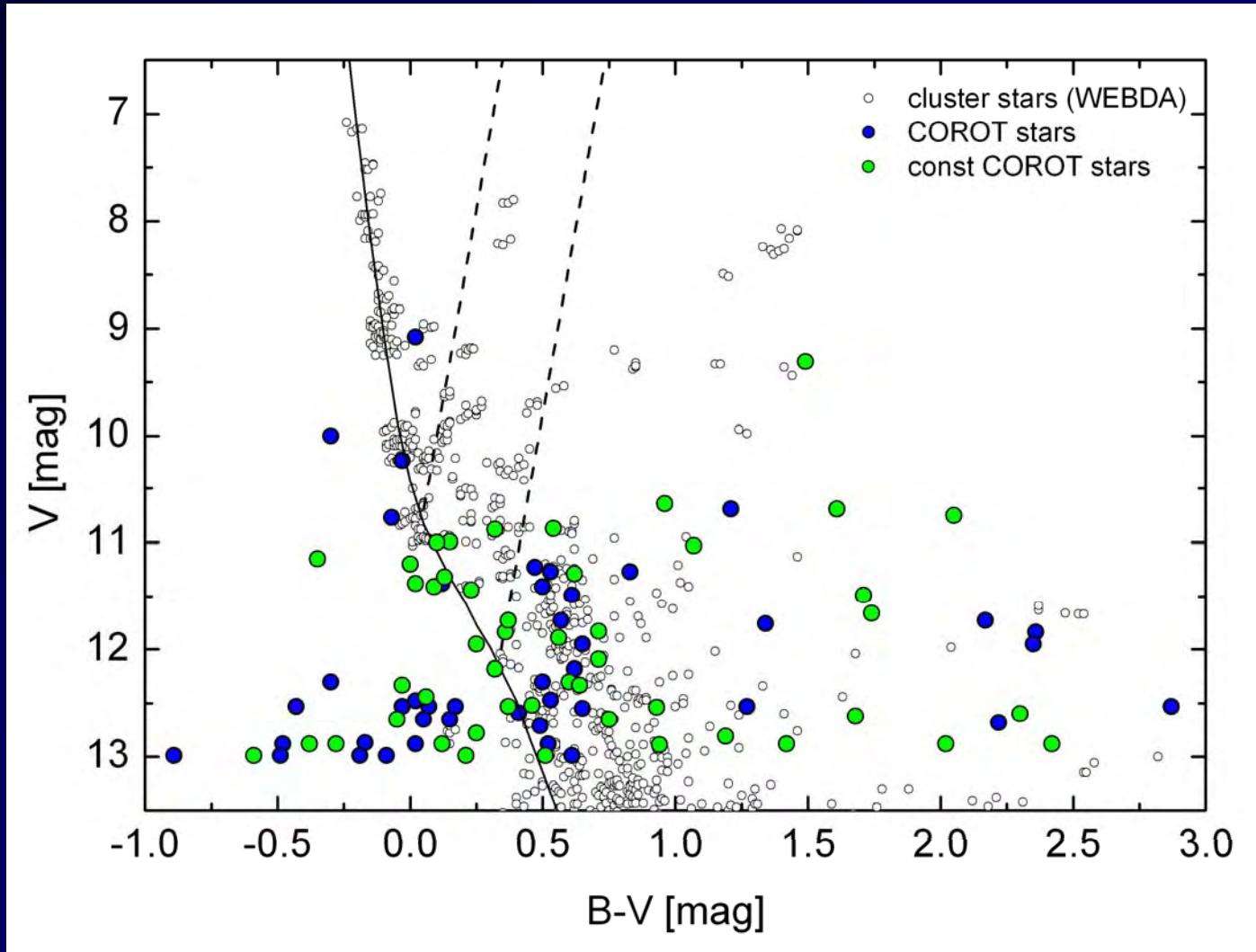
Feb 2-5, 2009

COROT Symposium

K. Zwintz



NGC 2264 CMD



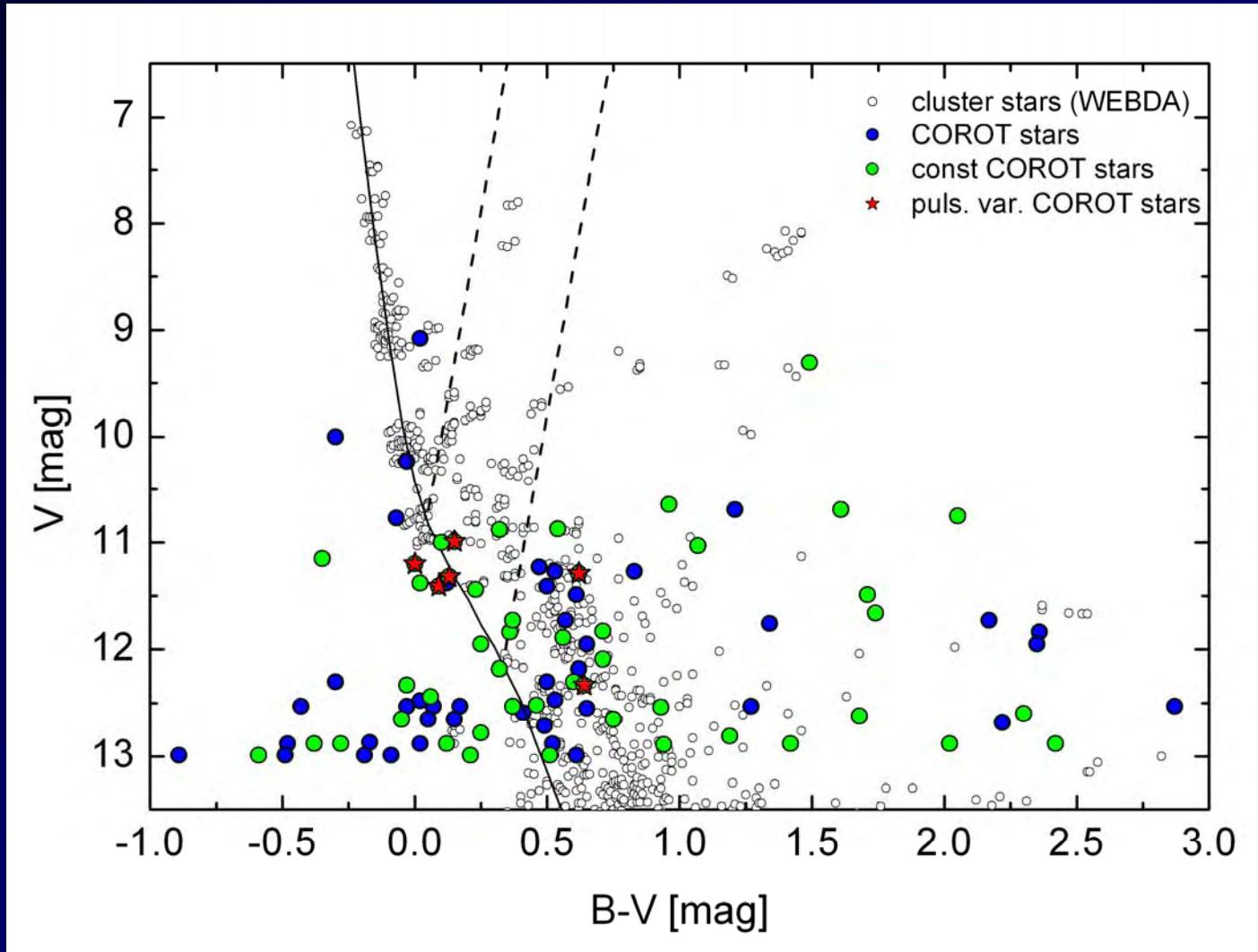
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NGC 2264 CMD



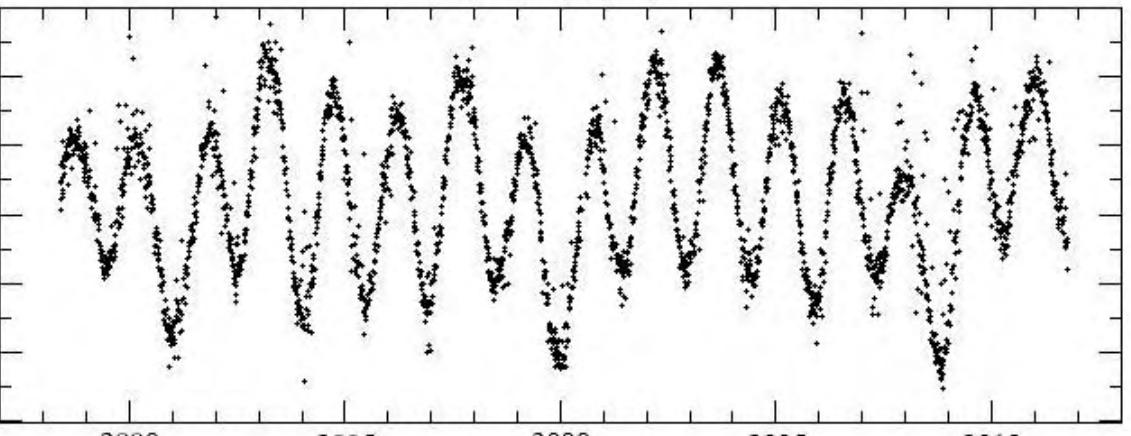
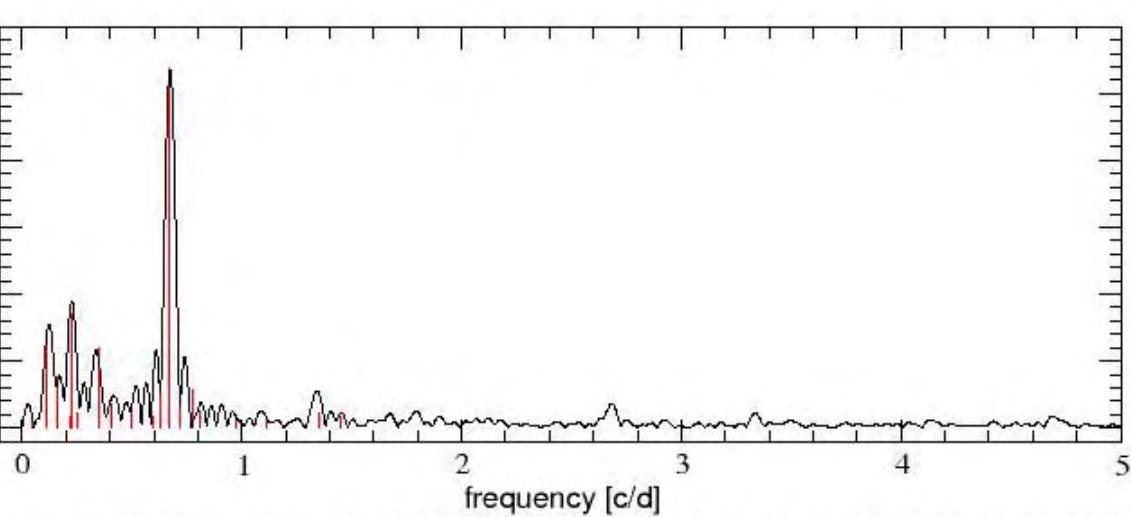
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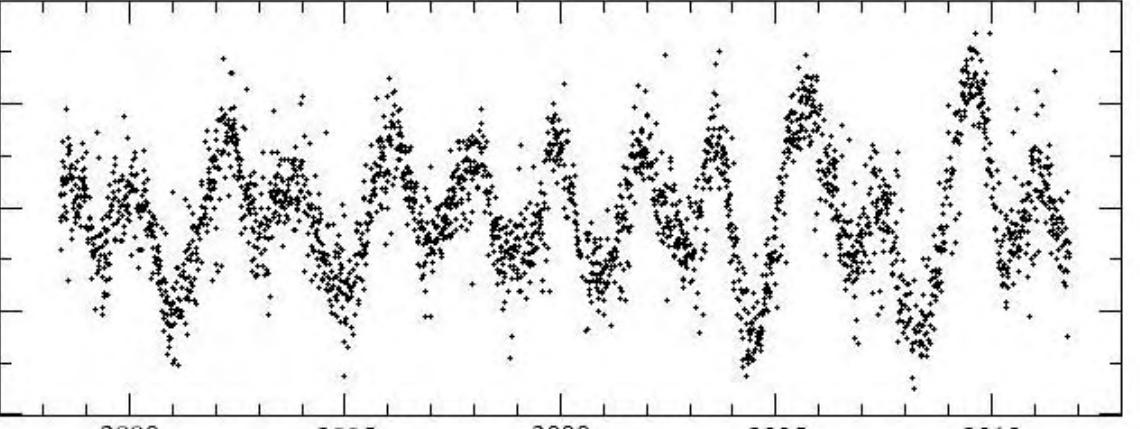
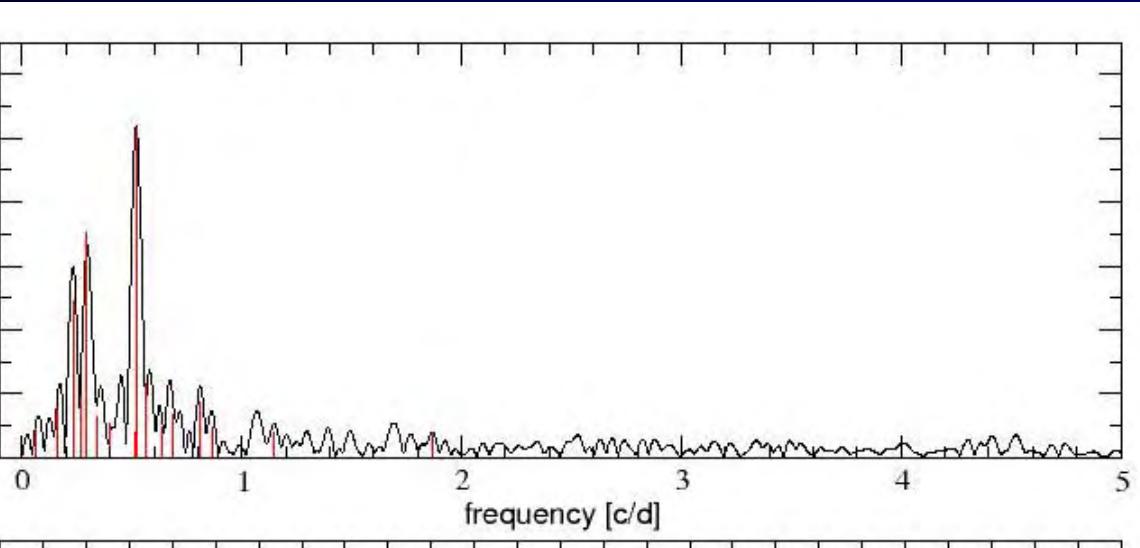
0500007018



- NGC 2264 VAS 20
- $V = 11.25$ mag
- Sp = F5V
- ROSAT source
- $T_{\text{eff}} = 6360\text{K}$
- Cluster member
 - Flaccomio
- 10 significant peaks between 0.1 and 0.8 c/d

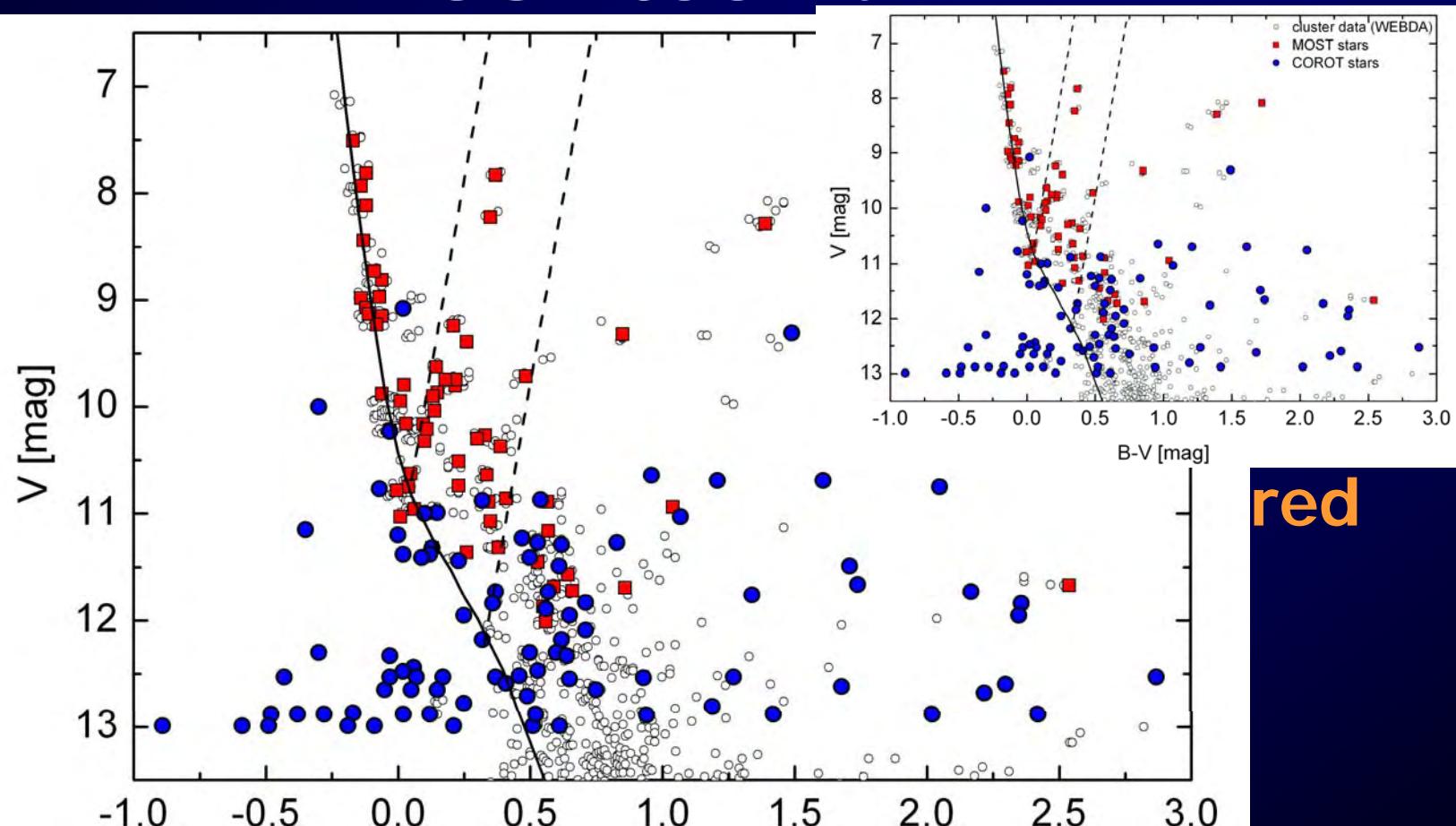


0223979759



- NGC 2264 125
- $V = 12.32$ mag
- Sp = F9V
- $T_{\text{eff}} = 6176$ K
- Cluster member
 - Flaccomio
 - 96% probability
- 13 significant peaks from 0 to 2 c/d

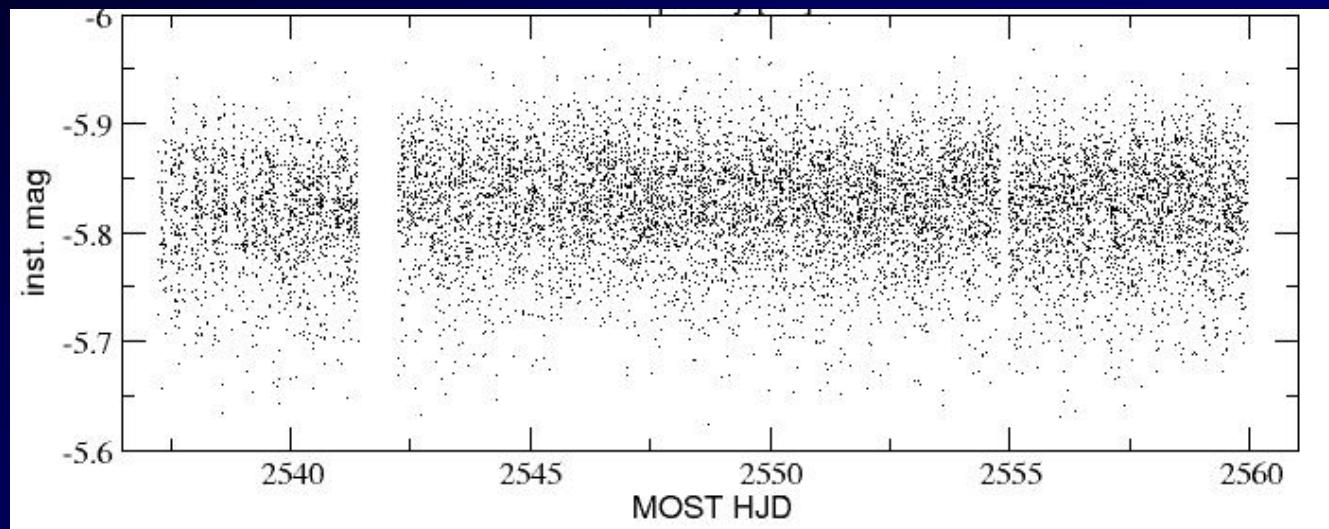
NGC 2264: not only COROT, MOST too...!



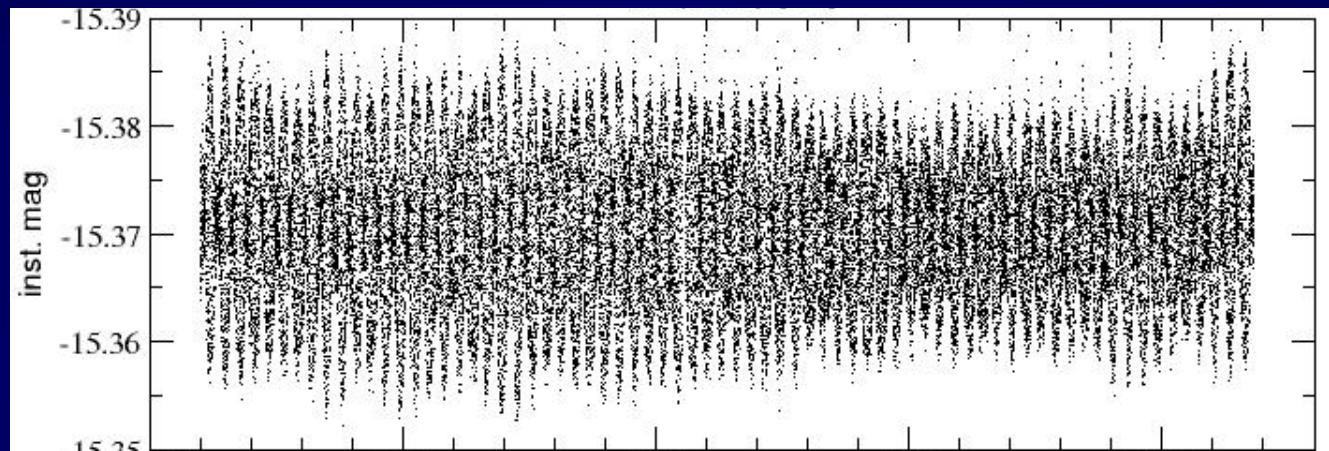


"0223969382 = MOST GS6A"

MOST

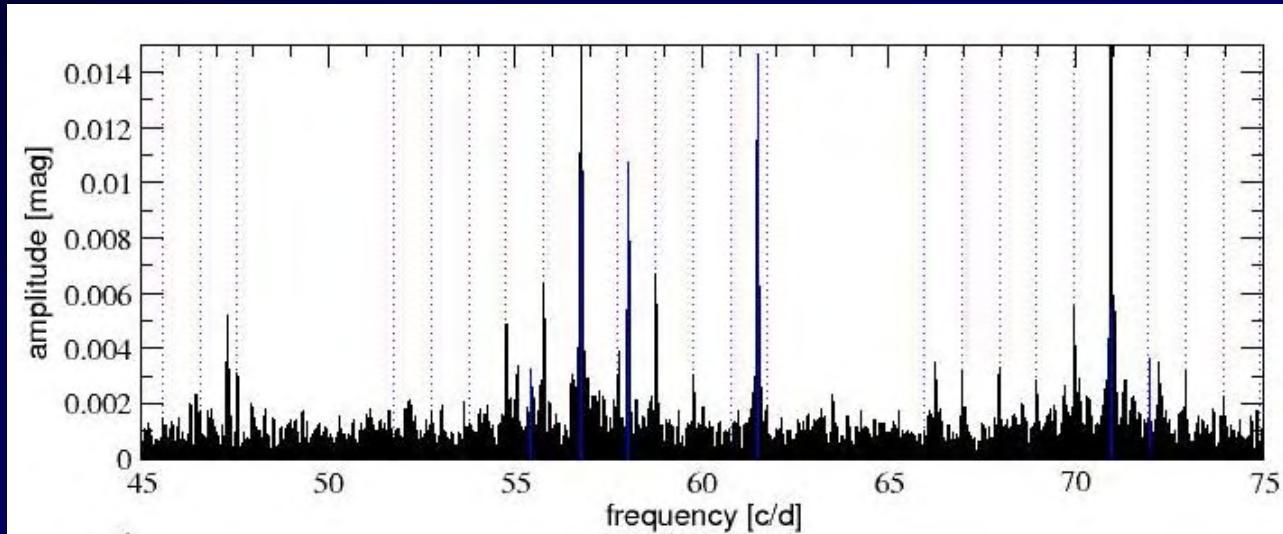


COROT

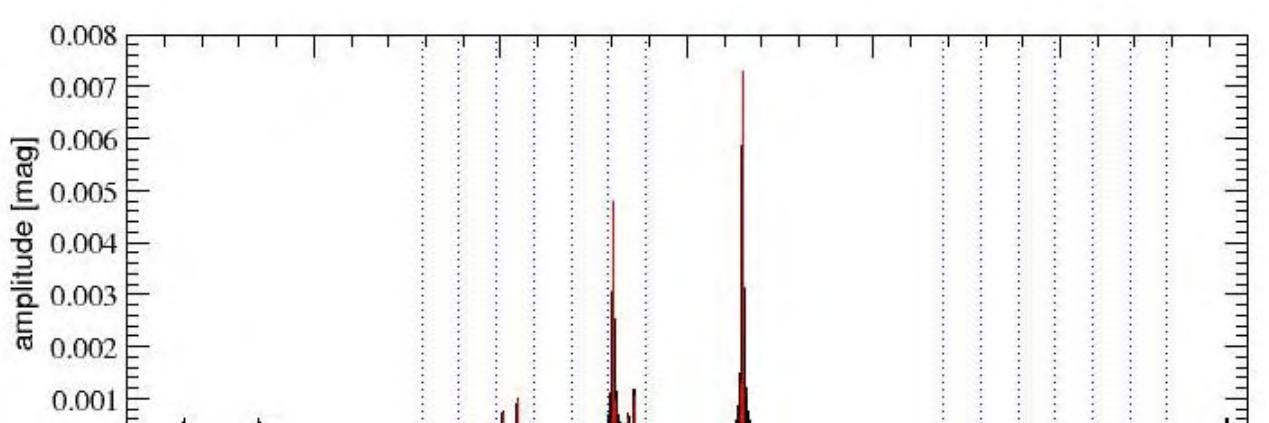




"0223969382 = MOST GS6A"



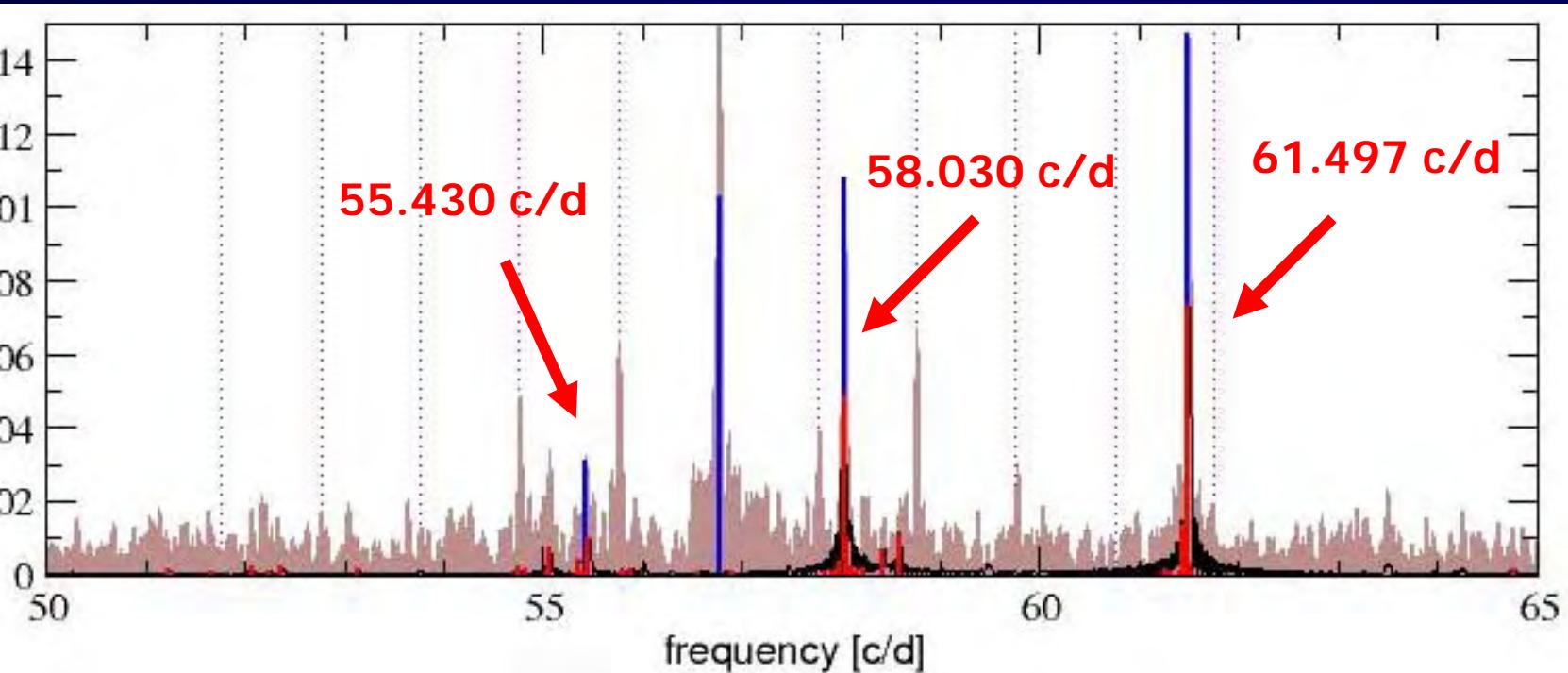
MOST



COROT



"0223969382 = MOST GS6A"





Summary

~100 A & F type stars in the field of NGC 2264

- 45 constant & 55 variable
- **6 pulsating members**
 - 4 potential PMS γ Dor variables
 - 1 candidate PMS δ Scu & γ Dor hybrid (problematic!) ?
 - 1 PMS δ Scu pulsator – common with MOST

magettes: currently missing

MOST & COROT: first complete asteroseismic survey of A & F type cluster stars

Representative statistics