



Recent results of the “CSI2264 Campaign” in Dec 2011 / Jan. 2012 (CoRoT: SRa05)

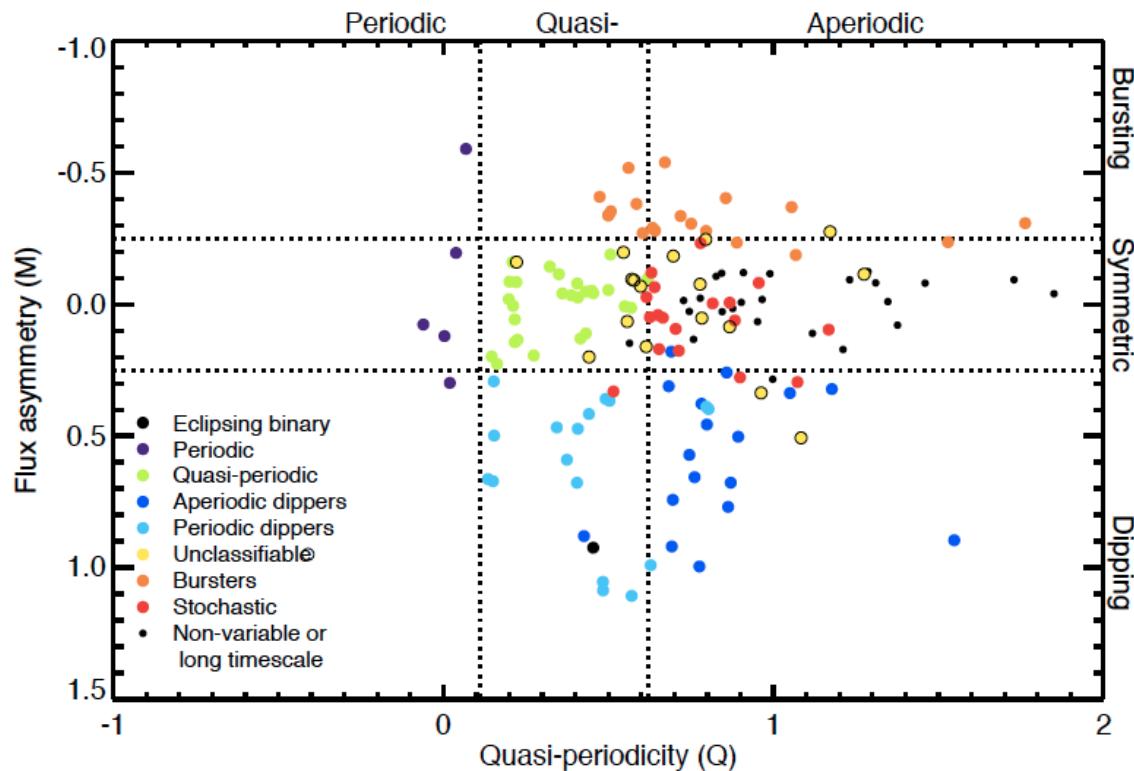
K. Zwintz & the CSI2264 Team



Team: Young Stellar Objects

- Major findings – citing Ann Marie Cody:

“We have for the first time been able to divide variability into many (>3) different morphological classes. In addition, we found that the optical morphologies are often quite different from the infrared morphologies. This implies that there are unique variability mechanisms originating in the disk itself.”





Team: Young Stellar Objects

- Publications – page 1

- “*CSI2264: Characterizing accretion-burst dominated light curves for young stars in NGC 2264*”
J. Stauffer, A. M. Cody, A. Baglin, S. Alencar, L. Rebull et al.,
2014, AJ, 40 pages (!), **accepted**
 - “*CSI2264: Simultaneous optical and infrared light curves of young disk-bearing stars in NGC 2264 with CoRoT and Spitzer – evidence for multiple origins of variability*”
A. M. Cody, J. Stauffer, A. Baglin, G. Micela, L. Rebull et al.,
2014, AJ, 59 pages (!) **accepted**
 - “*A multiwavelength view of star-disk interaction in NGC 2264*”
A. M. Cody, J. R. Stauffer, G. Micela, A. Baglin and the CSI2264 team,
2013, AN 334, 63



Team: Young Stellar Objects

- Publications – page 2

- “*Dynamical star-disk interaction in the young stellar system V354 Mon*”

N.N.J. Fonseca, S.H.P. Alencar, J. Bouvier, F. Favata, and E. Flaccomio, 2014, **submitted**

- “*Mapping accretion and its variability in the young open cluster NGC 2264: a study based on u-band photometry*”
L. Venuti, J. Bouvier, E. Flaccomio, S. Alencar, et al., 2014,
submitted

- “*Observational clues to the physics at the magnetosphere in young stellar objects*”

S. H. P. Alencar, 2014, EPJ Web of Conferences 64, 08001



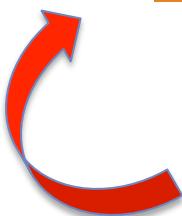
Team: Young Stellar Objects

Silvia Alencar:

“One interesting result we got from the last campaign concerning the AA Tau-like stars is that their light curves can change and become irregular (and vice versa, irregulars can become AA Tau-like) in a timescale of a few years. This is nice because it starts to set a **timescale for the transition between stable and unstable accretion regimes.**”

- *“Observational clues to the physics at the magnetosphere in young stellar objects”*

S. H. P. Alencar, 2014, EPJ Web of Conferences 64, 08001



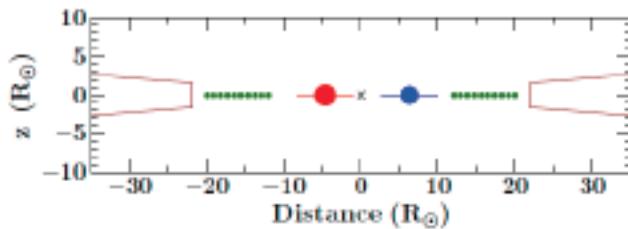
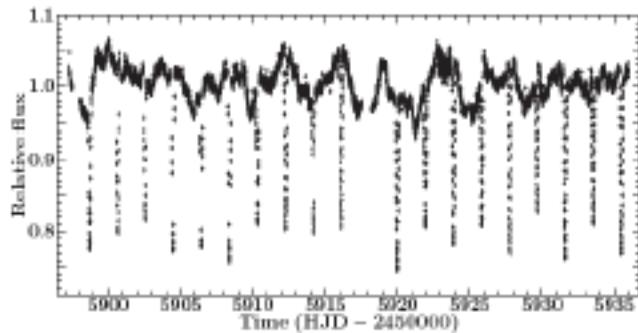


Team: Young eclipsing binaries

Gillen et al. 2013, in press

- Corot 223992193; $P_{\text{orb}} = 3.8745\text{d}$
- 5 Myr eclipsing binary + binary-disk interaction

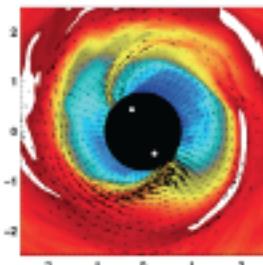
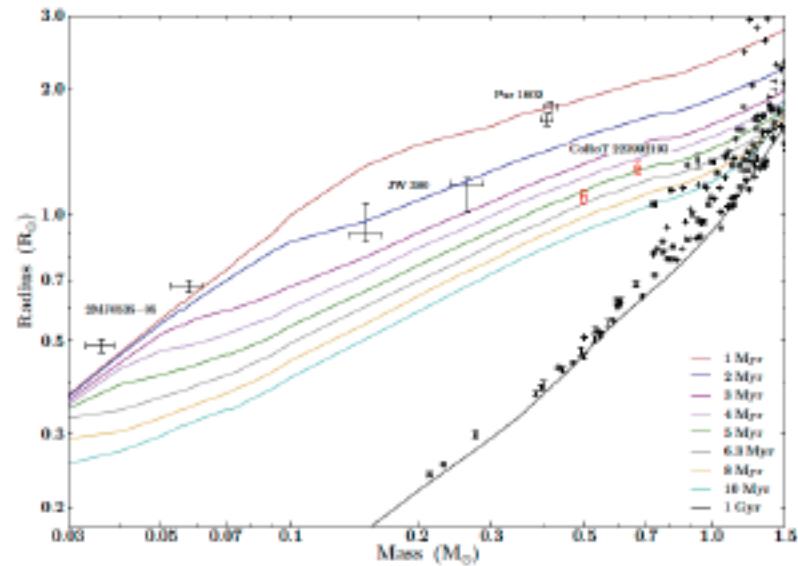
Corot light curve (2011 NGC 2264 campaign)



Sketch of the system

3D MHD simulations (Shi et al. 2012)

Mass-radius calibration of PMS models





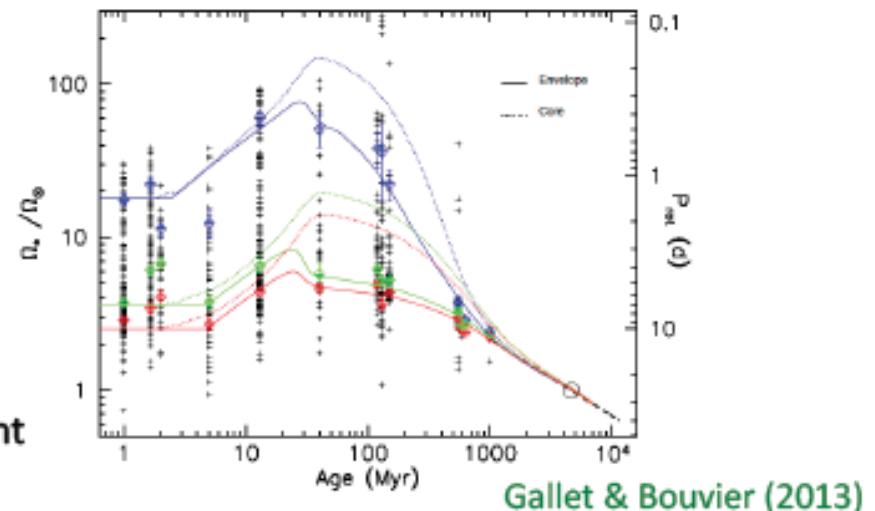
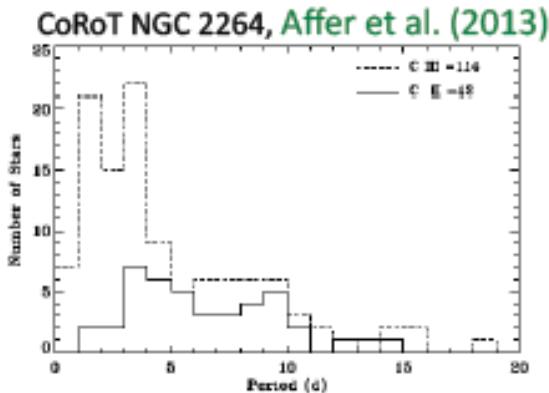
Team: Young eclipsing binaries

- Publications
 - “*CoRoT223992193: A new, low-mass, pre-main sequence eclipsing binary with evidence of a circumbinary disk*”
E. Gillen, S. Aigrain, A. McQuillan, J. Bouvier, S. Hodgkin, S. H. P. Alencar, et al., 2014, **in press**



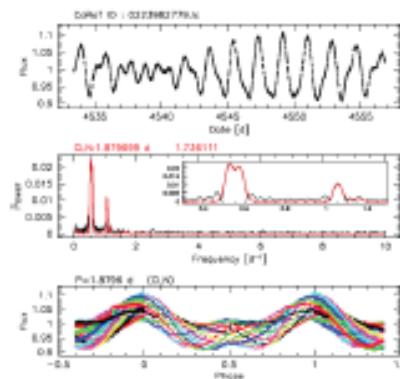
Team: Rotation

Rotational period distributions



Rotation periods derived from periodic light curves in various SFRs and young open clusters can be used to constrain angular momentum evolution models

Long term spotted light curve can also reveal surface differential rotation -> allows to investigate the dynamo process in young fully convective stars



Slide: courtesy of J. Bouvier



Team: Rotation

- Publications
 - “*Rotation in NGC 2264: a study based on CoRoT photometric observations*”
L. Affer, G. Micela, F. Favata, E. Flaccomio, J. Bouvier,
2013, MNRAS, 430, 1433



Team: X-rays

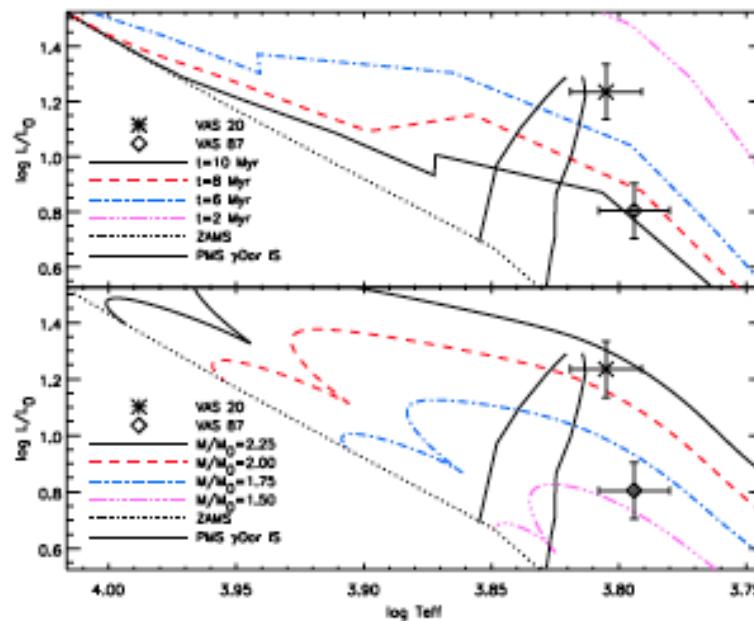
- Publication plans
 - “*Deep X-ray observation of NGC 2264*” (mainly Chandra data)
E. Flaccomio & the Palermo group
 - “*Multi-band flare analysis*”
E. Flaccomio et al.
based on CoRoT, Spitzer & Chandra data; flare detections in all 3 bands
 - “*Origin of X-ray variability*”
E. Flaccomio et al.
based on CoRoT, Spitzer, Chandra and Flames data;
correlation studies: X-ray vs. optical, X-ray vs. mid-IR etc.



Team: PMS Asteroseismology

- Major findings
 - Discovery of the first members of the group of PMS γ Doradus stars

Zwintz et al. 2013



- Oscillations in PMS stars can be used to determine the relative phase in early stellar evolution (paper in prep.)



Team: PMS Asteroseismology

- Publications
 - “*Regular frequency patterns in the young δ Scuti star HD 261711 observed by the CoRoT and MOST satellites*”
K. Zwintz, L. Fossati, D. B. Guenther, T. Ryabchikova et al.
2013, A&A, 552, 68
 - “ *γ Doradus pulsation in two pre-main sequence stars discovered by CoRoT*”
K. Zwintz, L. Fossati, T. Ryabchikova, A. Kaiser et al., 2013,
A&A 550, 121