

VEGA Recent results and ongoing programs

Anthony Meilland and the VEGA team



















The VEGA instrument Two types of data reduction

Auto-correlation

Calibrated measurement

V² and Closure phase

Need of calibrator



Intercorrelation

Differential measurements

 $v(\lambda)$ and $\phi(\lambda)$

No need of calibrator







The VEGA instrument Two types of data reduction

Auto-correlation

Intercorrelation























The fundamental parameters of the roAp star HD 24712

A rapidly oscillator at the red edge of the instability strip $\!\!\!\star$

K. Perraut^{1,2}, I. Brandão³, M. Cunha³, D. Shulyak⁴, D. Mourard⁵, N. Nardetto⁵, and T. A. ten Brummelaar⁶





VEGA New publications 5 publications in 2016 and already 2 for 2017...

ξ Tauri: a unique laboratory to study the dynamic interaction in a compact hierarchical quadruple system^{*,**}

J. A. Nemravová^{1,***}, P. Harmanec¹, M. Brož¹, D. Vokrouhlický¹, D. Mourard², C. A. Hummel³, C. Cameron⁴,
J. M. Matthews⁵, C. T. Bolton⁶, H. Božić⁷, R. Chini^{8,9}, T. Dembsky⁸, S. Engle¹⁰, C. Farrington¹¹, J. H. Grunhut³,
D. B. Guenther¹², E. F. Guinan¹⁰, D. Korčáková¹, P. Koubský¹³, R. Kříček¹, R. Kuschnig¹⁴, P. Mayer¹,
G. P. McCook¹⁰, A. F. J. Moffat¹⁵, N. Nardetto², A. Prša¹⁰, J. Ribeiro¹⁶, J. Rowe¹⁷, S. Rucinski⁶, P. Škoda¹³,
M. Šlechta¹³, I. Tallon-Bosc¹⁸, V. Votruba¹³, W. W. Weiss¹⁴, M. Wolf¹, P. Zasche¹, and R. T. Zavala¹⁹



Hierachical systems are amazing Laboratories for stellar physics

Stellar parameters of the 4 components of the system

Multi-technique study

- Photomety
- Spectroscopy
 - Interferometry
 - Astrometry









Flattening and surface-brightness of the fast-rotating star δ Per with the visible VEGA/CHARA interferometer

M. Challouf^{1,2}, N. Nardetto², A. Domiciano de Souza², D. Mourard², I. Tallon-Bosc³, H. Aroui¹, C. Farrington⁴, R. Ligi⁵, A. Meilland², and M. Mouelhi¹





 θ =0.544±0.007mas Flattening of 1.121±0.013 57% of Critical Velocity

EXETER









VEGA 2016 Observations

				Weather	Technical		Number of
RUN	PI-Run	Dates	Nights	issues	issues	Data	measurements
REMOTE-1	Denis	25-29 May	5	2	2	1	10
REMOTE-2	Karine	8-17 June	10	1,5	0	8,5	30
Mount Wilson I	Philippe	8-11 Jul	4	0	0	4	4n FRIEND
REMOTE-3	Nicolas	23-31 Jul	9	3	0	6	52
REMOTE-4	Isabelle	19-25 Aug	7	0	0	7	79
Mount Wilson II	Denis	20 Sep 1 Oct	12	5	0	7	50 +3.5n FRIEND
REMOTE-5	Denis	19-23 Nov	5	2,5	0	2,5	35
REMOTE-6	Orlagh	10-13 Dec	4	1,5	0	2,5	19
Total			56	15,5	2	38,5	275 +7.5n FRIEND

68% of good nights

	2013	2014	2015	2016
# of Nights	59	48	62	56
# of Bad Nights	17	13	16	17,5
# of measurements	272	286	304+F	275 +F















VEGA 2016 Observations

New CHARA/VEGA Control Room in the GI2T building

Fred Morand observing almost all remote nights in Calern





VEGA technical news

- New control room in the Old "GI2T" is now fully functional !
- New alignment procedure : M10 & Tiptilt => Periscope & M6 Fully operational now : More reactive & less « dangerous »
- Upgrade in the 4T mode with CLIMB 3T + VEGA 2T tracking Tests on γ Cas show that new procedure is more robust
- New tests on the low resolution mode (R=1700) using CLIMB as tracker Data taken last week. To be reduced soon
- Beginning of simplification of VEGA control software for integrated operation Still work to do until training session in Fall 2017...
 ...but our computer Guru Jean-Michel is working on it
- Quite a hard time with the upgrade to xUbuntu (Poor Jean-Michel)

















- Supergiant : A4Iab (about 65Ro)
- In fast rotation : vsini=68km/s (about 50% Vc)
- Show the B[e] phenomenon : Strong IR exces (dust) + permited lines + forbidden lines
- Binary system strongly suspected (Plets+ 1995)



The A[e] supergiant HID62623





Thanks? VEGA@CHARA 10 Year Anniversary 2007-2017

- These years have been a great adventure for us
- We have add a wonderful series of papers together
- We are still enthusiastic about this relationship
- We want to take it further with FRIEND and SPICA
- We hope you feel the same...

That sounds like a happy wedding!



...more things about our present and future together in Denis & Marc-Antoine talks









