Corot

Binaries

Thematic team

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• Team information
• Binaries in the COROT “eyes”
• Plans for the upcoming AO call
Team information

http://thor.ieec.uab.es/binteam

• 44 members (as of 20/05/2005)
  – Austria: 1
  – Belgium: 4
  – Brazil: 11
  – France: 1
  – Germany: 2
  – Italy: 21
  – Spain: 4

• 25% women

Objectives:

• Coordinate binary star activities within COROT
• Act as a forum to avoid duplications
• Foster collaborations
Binary stars in the COROT “eyes”

• Three catalogs:
  – GCVS
  – The 9th Catalog of Spectroscopic Binaries
  – The 6th Catalog of Orbits of Visual Binary Stars

• Search radius of 15° (to accommodate a possible drift)
• 9.5 mag < m < 17 mag

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<tr>
<th></th>
<th>Center</th>
<th>Anti-center</th>
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<tr>
<td>Eclipsing binaries</td>
<td>220</td>
<td>194</td>
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<td>Spectroscopic binaries</td>
<td>17</td>
<td>12</td>
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<td>Visual binaries (w/orbits)</td>
<td>3</td>
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• EB statistics:
  – E & E: ⇒ ~12%
  – EA & EA: ⇒ ~60%
  – EB & EB: ⇒ ~10%
  – EW & EW: ⇒ ~13%
  – Others ⇒ ~5%

• SB statistics:
  – SB1 ⇒ ~65%
  – SB2 ⇒ ~35%
Known binaries and primary targets
Field: AC
E-filter
Targets for GB obs (spectr.) to the West of HD 49933 & HD 52265

GCVS4 and SB9, Anticenter, E
GCVS4 and SB9, Center, E

Field: C
E-filter
Targets for GB obs (spectr.) to the East
Preparing the upcoming AO call

What's left for the first year?
Known EBs in the AC field... V501 Mon

- Bossen & Klawitter (1972, AcA, 22, 411)
- Eccentric detached EB
- Possibly mid-F type
- $P = 7.02$ days
- $m = 12.7$-$13.2$ mag
- $e \approx 0.1$

Very little photometry
Probably apsidal motion
No spectroscopy
Known EBs in the AC field... GU Mon

- W UMa-type EB
- $m = 11.9-12.6$ mag

Almost no photometry
No spectroscopy
## Binary letters of interest

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<td>Fundamental stellar parameters and atmosphere properties by</td>
<td>C. Maceroni</td>
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<td>photometric monitoring of known close binaries</td>
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<td>**The formation and early stages of contact binaries: the twin</td>
<td>C. Maceroni</td>
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<td>system $V803$ Aql</td>
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<td>**Monitoring the optical counterpart of the micro-quasar $SS$ 433</td>
<td>C. Maceroni</td>
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<td>($V1383$ Aql)</td>
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<td><strong>A search for key eclipsing binaries with COROT</strong></td>
<td>I. Ribas</td>
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<td>**A largely unknown delta Scuti star in an eccentric eclipsing</td>
<td>P. Lampens</td>
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<td>binary: $V577$ Oph</td>
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<td>**Two magnetically active close eclipsing binaries not too far from</td>
<td>A. Lanza</td>
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<td>the $HD$ 49933 &amp; $HD$ 49434 field**</td>
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<td><strong>Interacting binaries</strong></td>
<td>E. Janot-Pacheco</td>
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<td><strong>Pulsation in early type binaries</strong></td>
<td>H. Lehmann</td>
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<td><strong>Self lensing in binary systems</strong></td>
<td>J. Schneider</td>
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So... what do we do?

- Join efforts & team up
- Ground-based observations
- Short runs