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# **NW Ser & V1446 Aql: two multiperiodic pulsating Be stars for the COROT exploratory programme**

J. Fabregat on behalf of the COROT Be star team

# Observing Be stars with COROT

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- Multiperiodicity detected in line profile variations supports that Be stars do pulsate non-radially
- No multiperiodicity has been detected so far in the photometric variations
- Two competing models try to explain the nature of photometric variations
- **The detection of photometric multiperiodicity would confirm the presence of  $nrp$ 's**

# NW Ser

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- B3Ve,  $V=6.14$

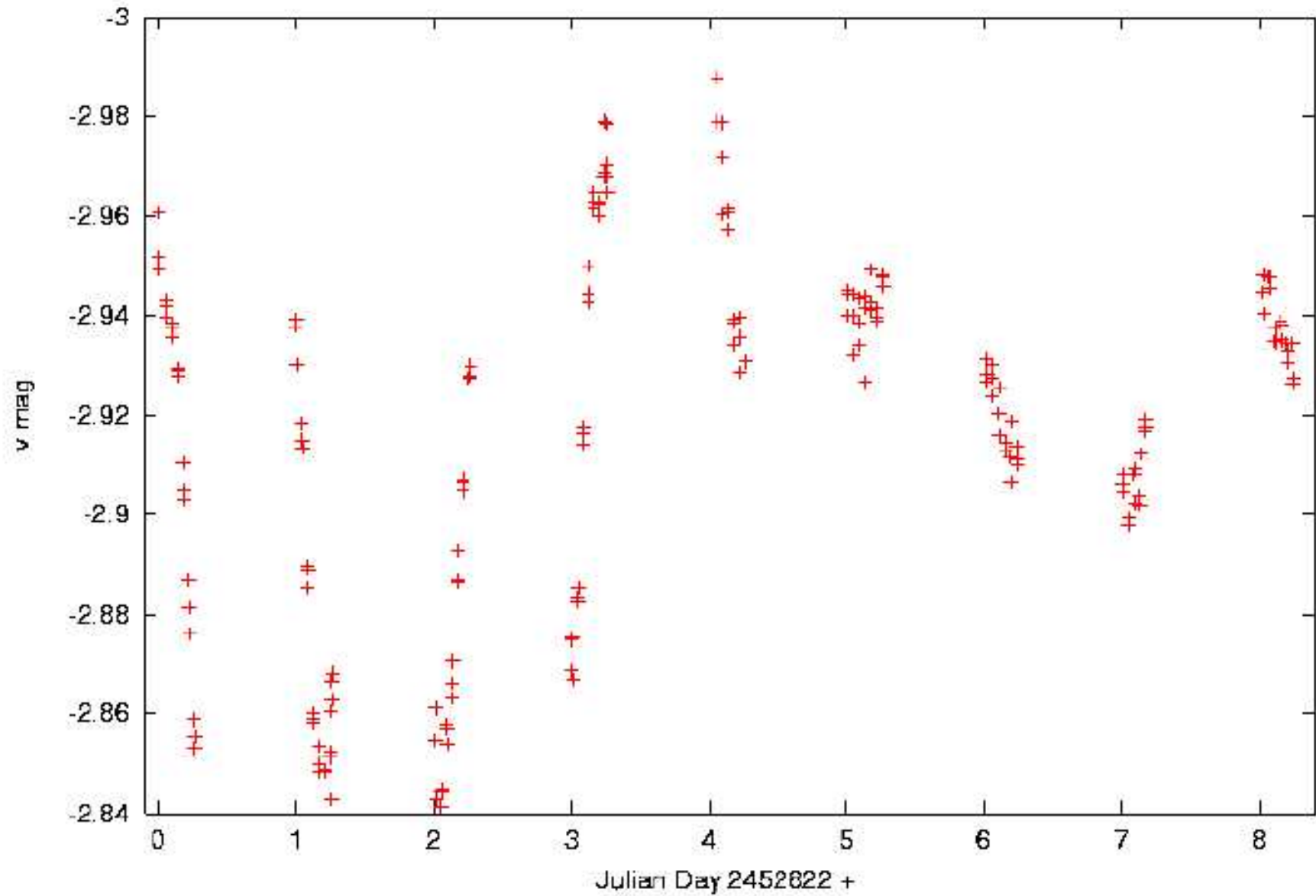


# NW Ser

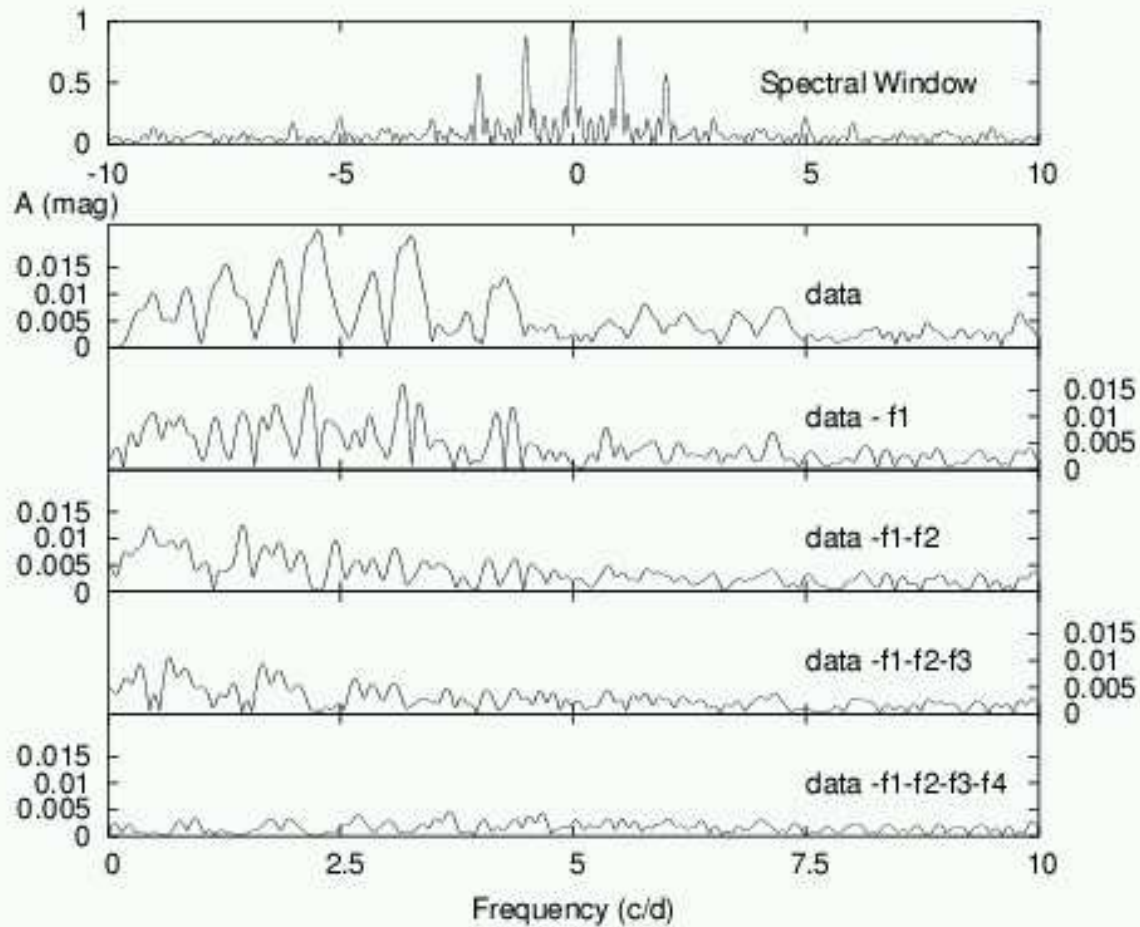
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- HD 168797 = HR 6873 = NW Ser
- B3Ve, V=6.14
- HIPPARCOS data:
  - P=0.488d. Hubert & Floquet 1998, A&A 335, 565
  - P<sub>1</sub>=0.46d., P<sub>2</sub> ~5.5d. Percy et al. 1999, A&A 348, 553

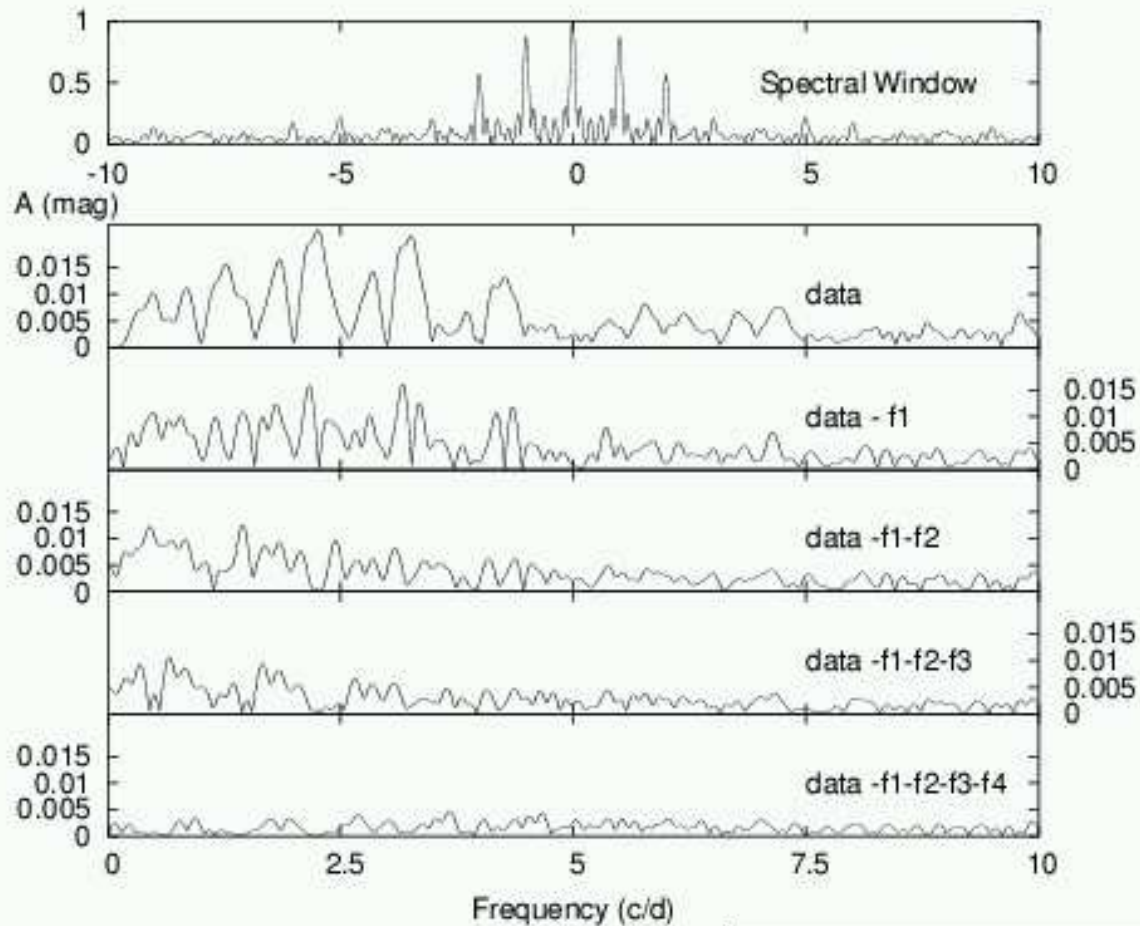
# NW Ser



# NW Ser



# NW Ser



| No.   | Freq. ( $\text{cd}^{-1}$ ) | Amplitude (mag)     | Phase (rad)       | S/N   |
|-------|----------------------------|---------------------|-------------------|-------|
| $f_1$ | 2.270                      | $0.0287 \pm 0.0011$ | $3.945 \pm 0.037$ | 17.23 |
| $f_2$ | 2.212                      | $0.0233 \pm 0.0010$ | $3.347 \pm 0.046$ | 14.02 |
| $f_3$ | 1.445                      | $0.0178 \pm 0.0009$ | $0.541 \pm 0.049$ | 10.69 |
| $f_4$ | 0.629                      | $0.0155 \pm 0.0009$ | $1.553 \pm 0.057$ | 9.32  |

# V1446 Aql

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- HD 179405 = V1446 Aql

# V1446 Aql

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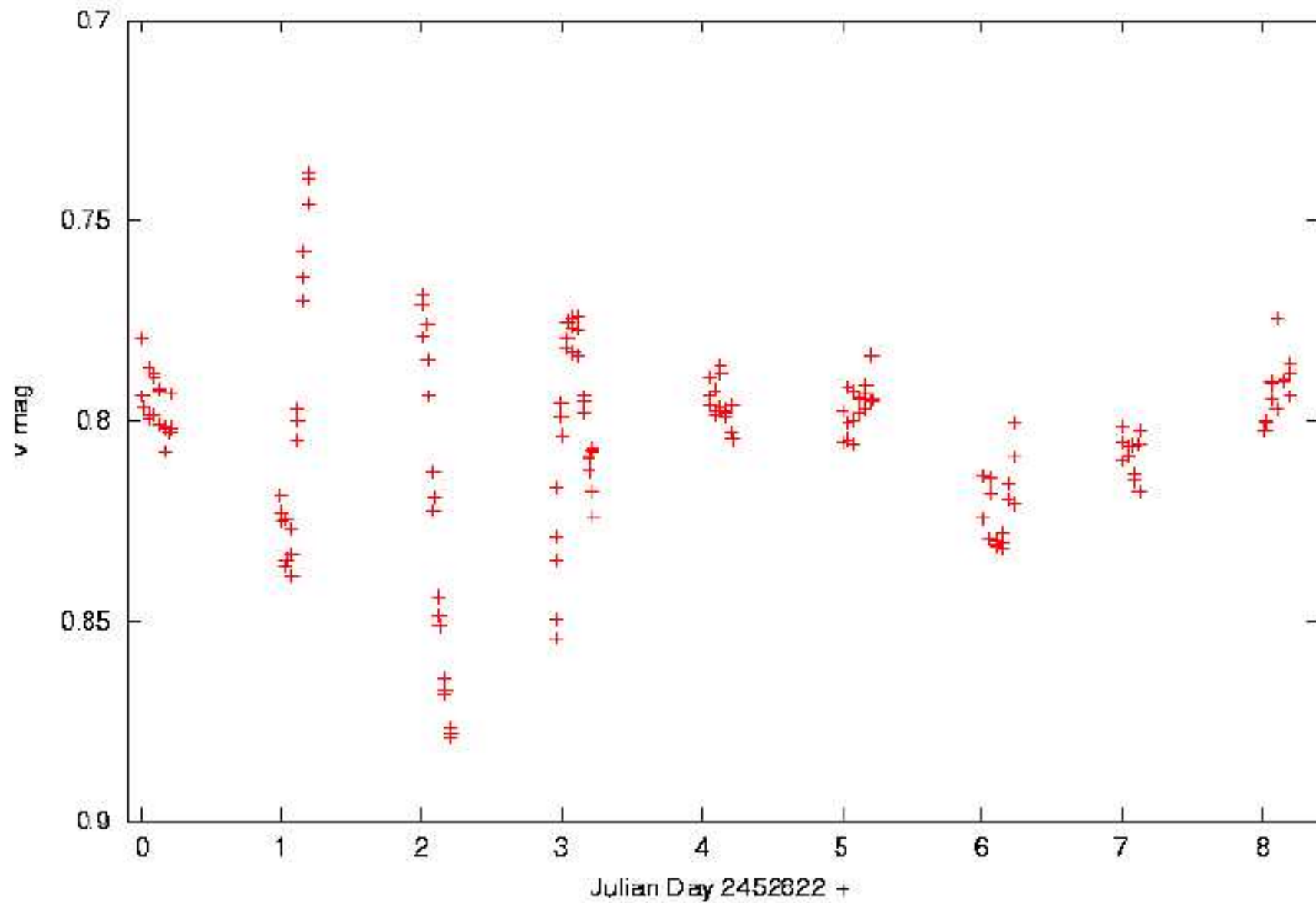
- HD 179405 = V1446 Aql
- B5e, V=8.98

# V1446 Aql

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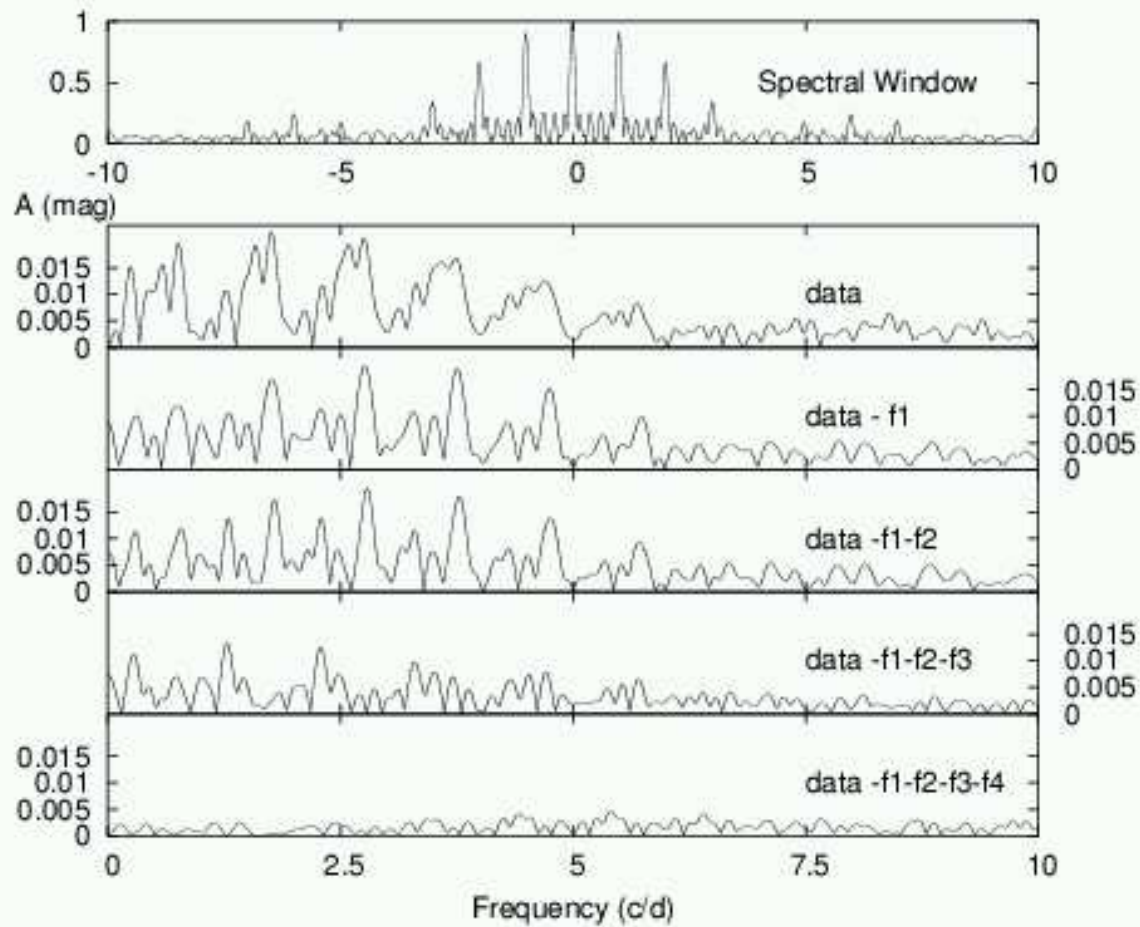
- HD 179405 = V1446 Aql
- B5e, V=8.98
- HIPPARCOS data: unresolved variable

# V1446 Aql

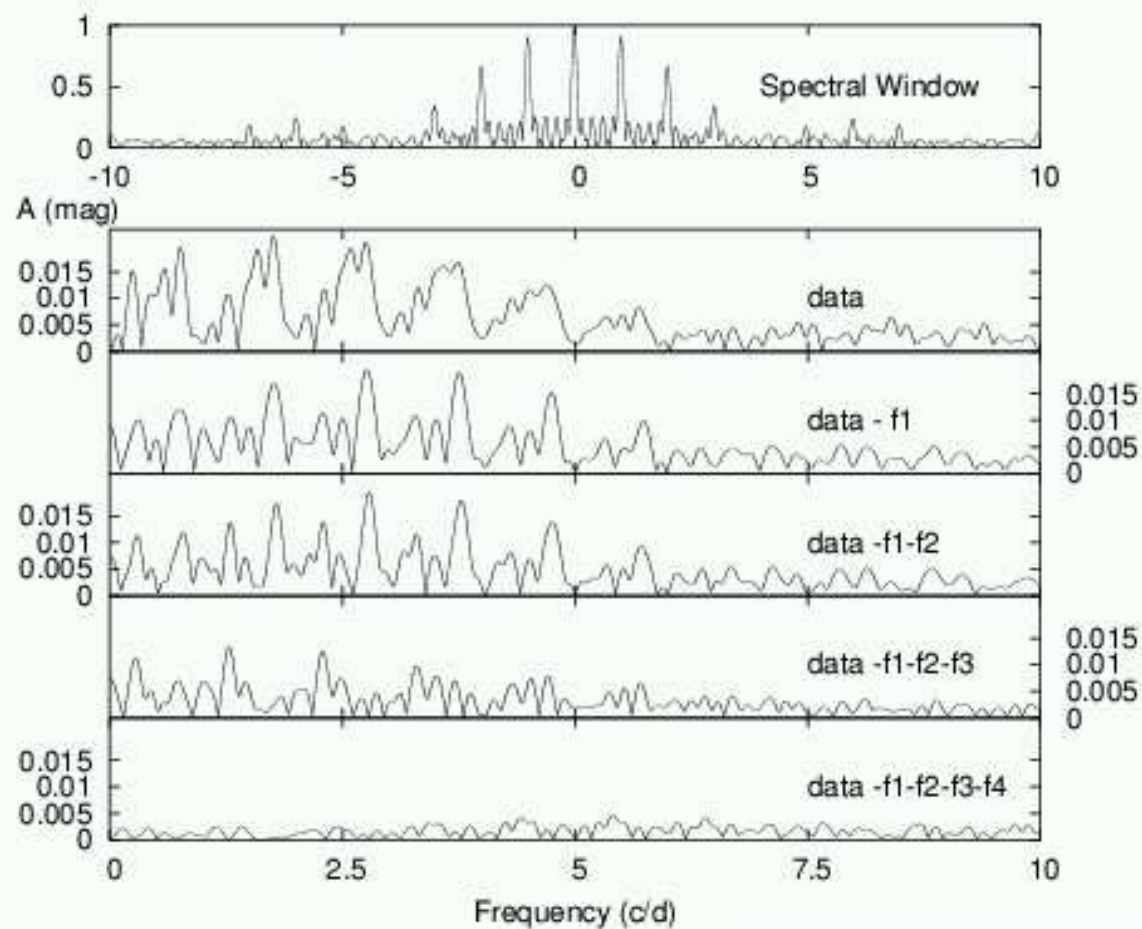




# V1446 Aql

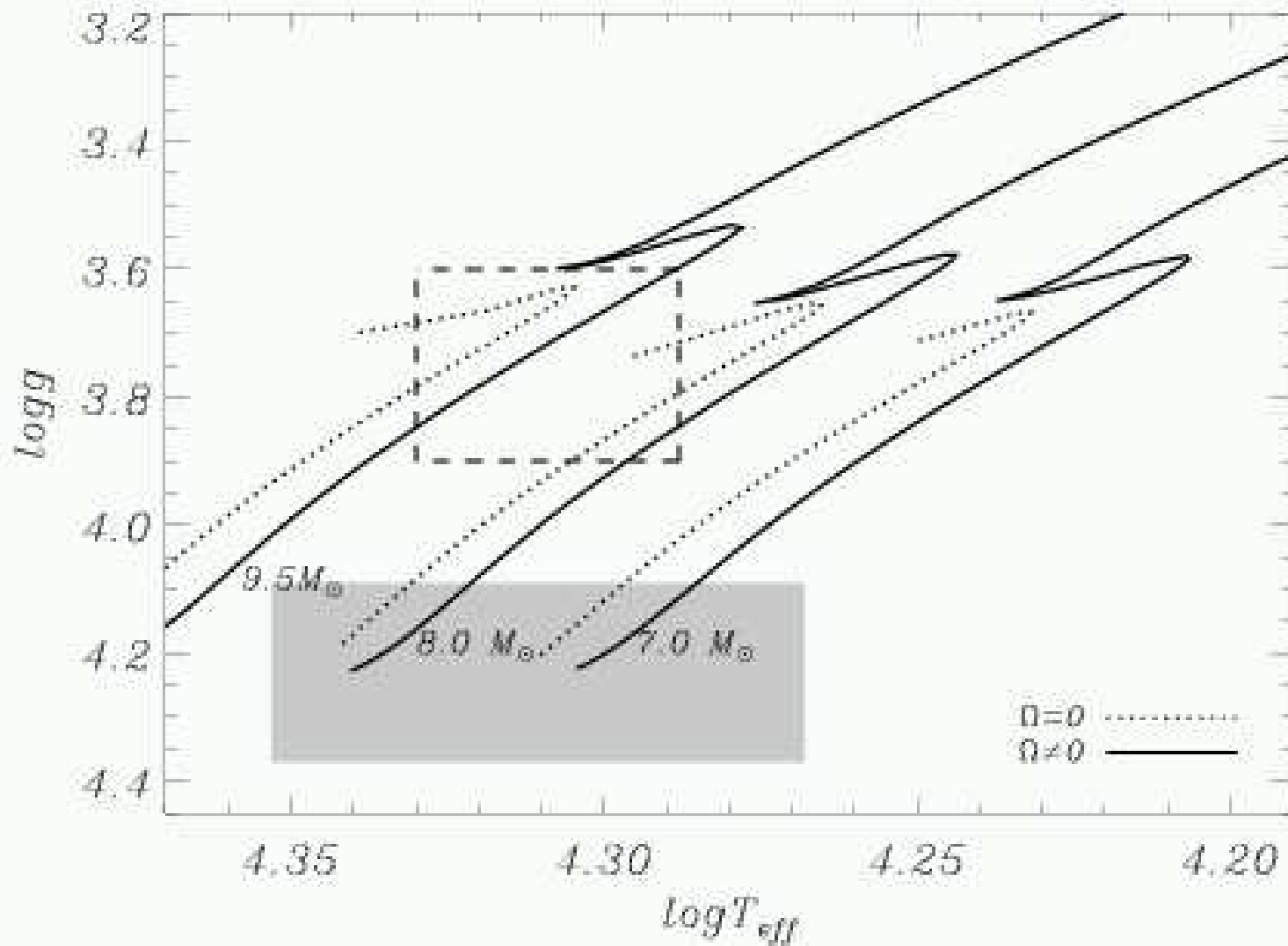


# V1446 Aql

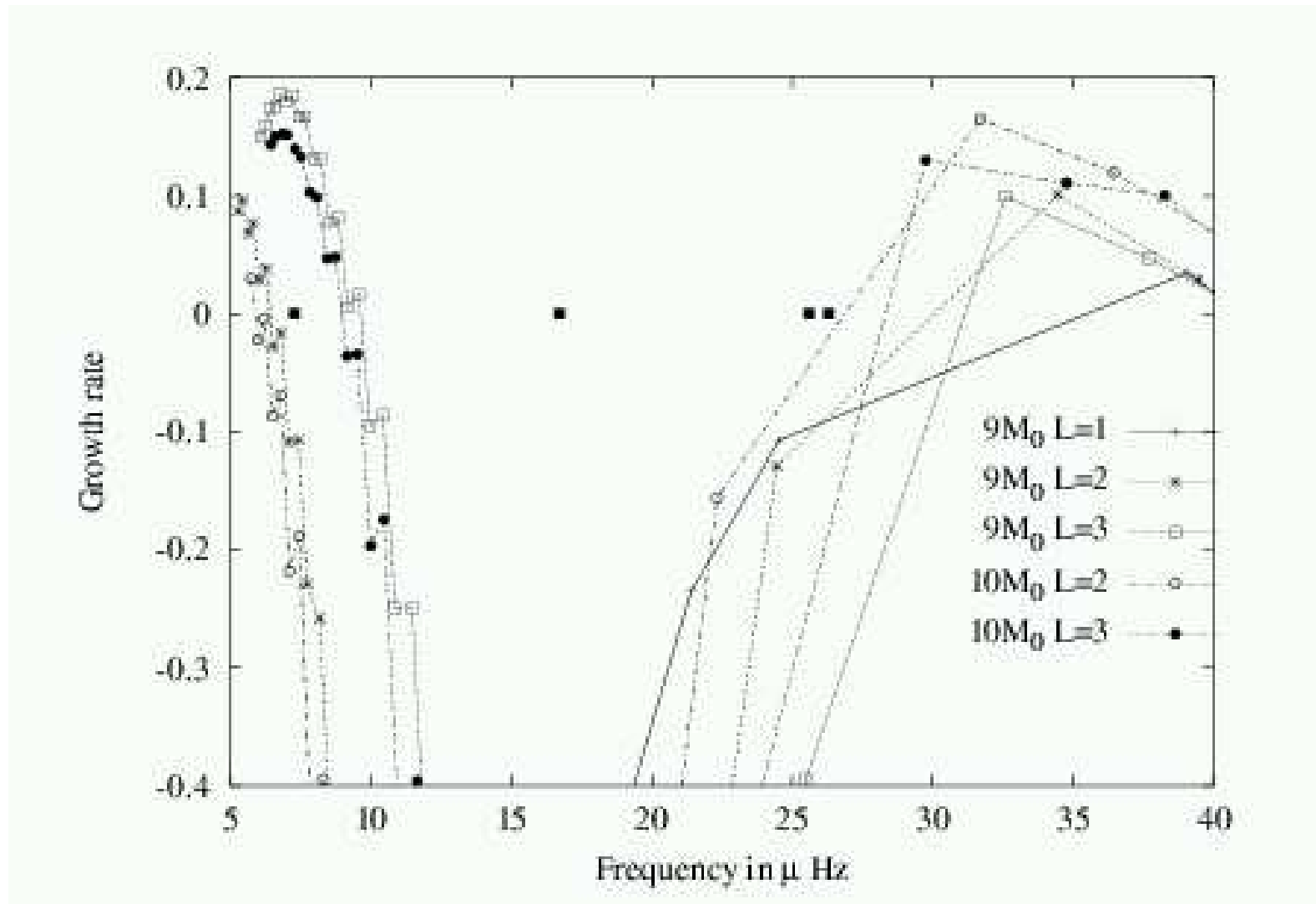


| No    | Freq. (cd <sup>-1</sup> ) | Amplitude (mag)     | Phase (rad)       | S/N   |
|-------|---------------------------|---------------------|-------------------|-------|
| $f_1$ | 1.605                     | $0.0732 \pm 0.0040$ | $3.501 \pm 0.051$ | 51.47 |
| $f_2$ | 1.621                     | $0.0699 \pm 0.0039$ | $5.888 \pm 0.056$ | 49.18 |
| $f_3$ | 2.794                     | $0.0198 \pm 0.0009$ | $1.051 \pm 0.051$ | 13.91 |
| $f_4$ | 1.282                     | $0.0164 \pm 0.0010$ | $1.635 \pm 0.061$ | 11.52 |

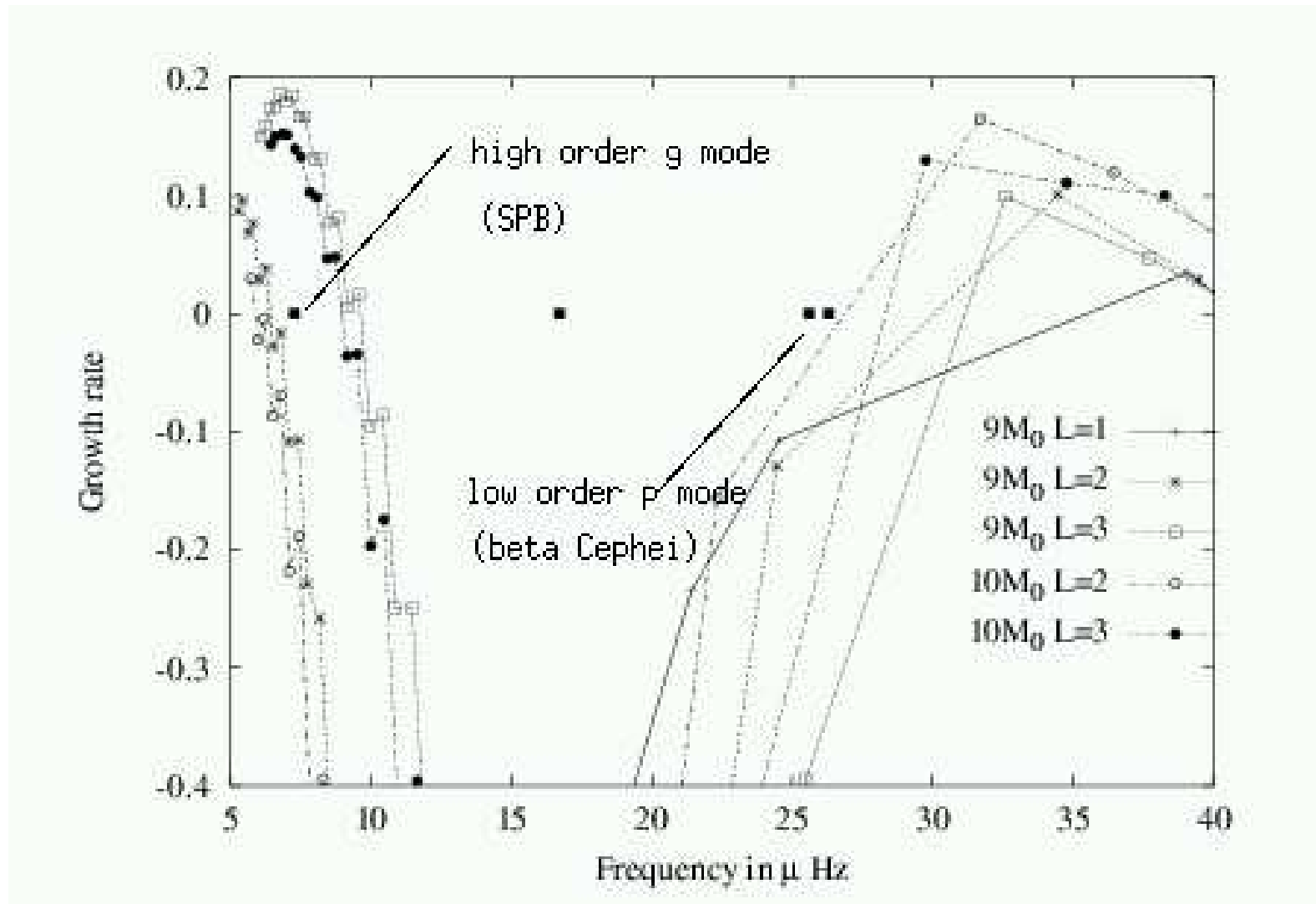
# Physical parameters



# NW Ser



# NW Ser



# Conclusions

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- NW Ser and V1446 Aql are the first Be stars for which multiperiodic photometric variability is detected from ground based observations
- NW Ser is a hybrid  $\beta$  Cep – SPB pulsator
- Both NW Ser and V1446 Aql are suitable targets for the COROT exploratory programme