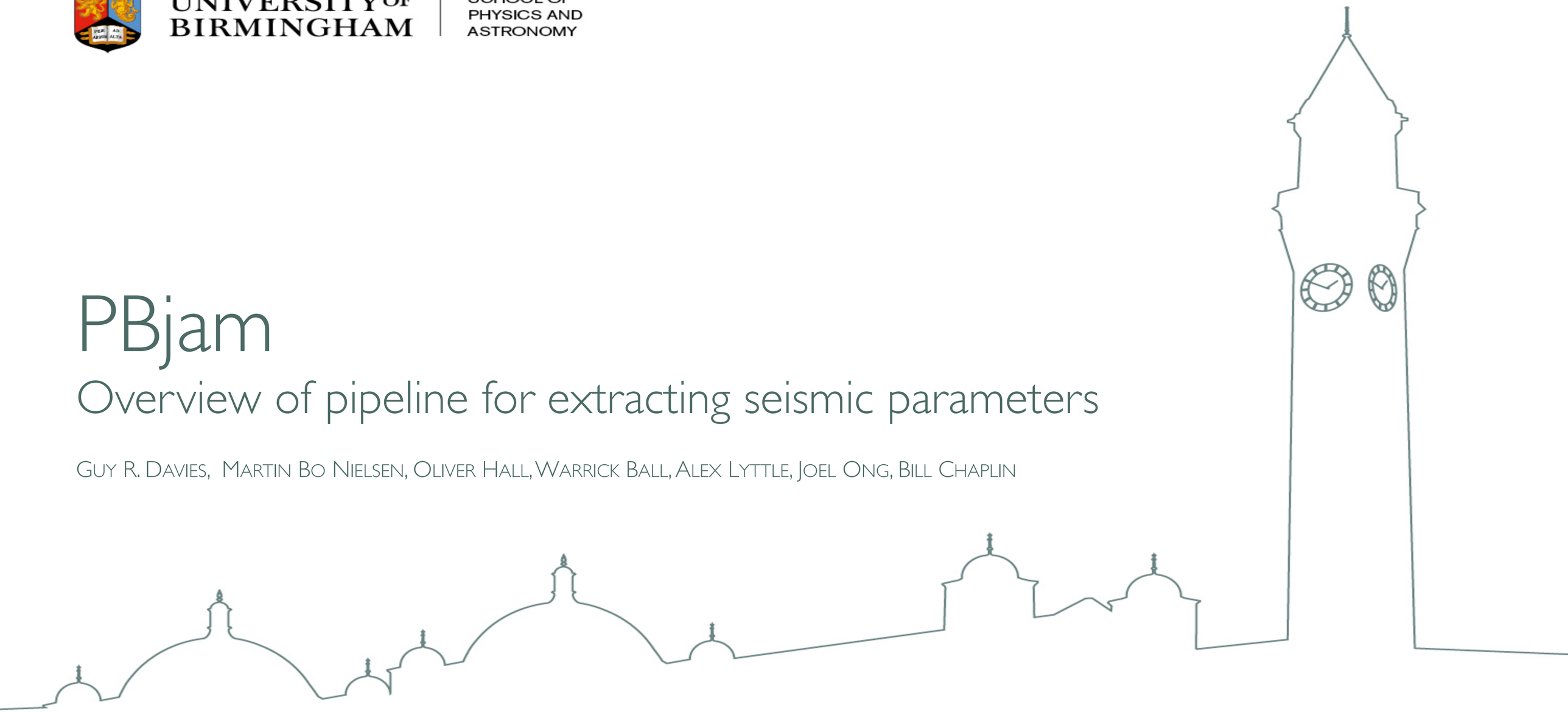
UNIVERSITY OF BIRMINGHAM | SCHOOL OF PHYSICS AND ASTRONOMY

PBjam

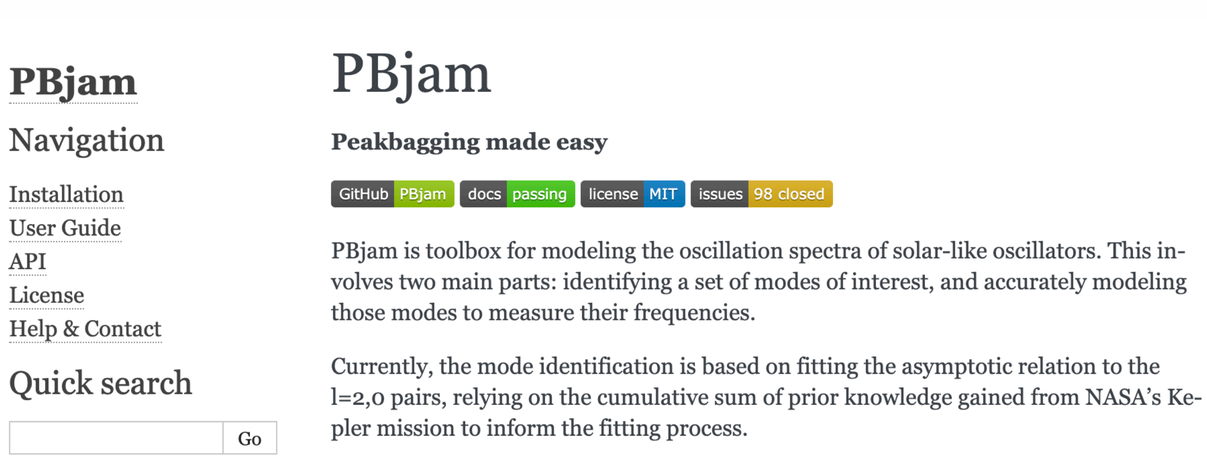
Overview of pipeline for extracting seismic parameters

Guy R. Davies, Martin Bo Nielsen, Oliver Hall, Warrick Ball, Alex Lyttle, Joel Ong, Bill Chaplin

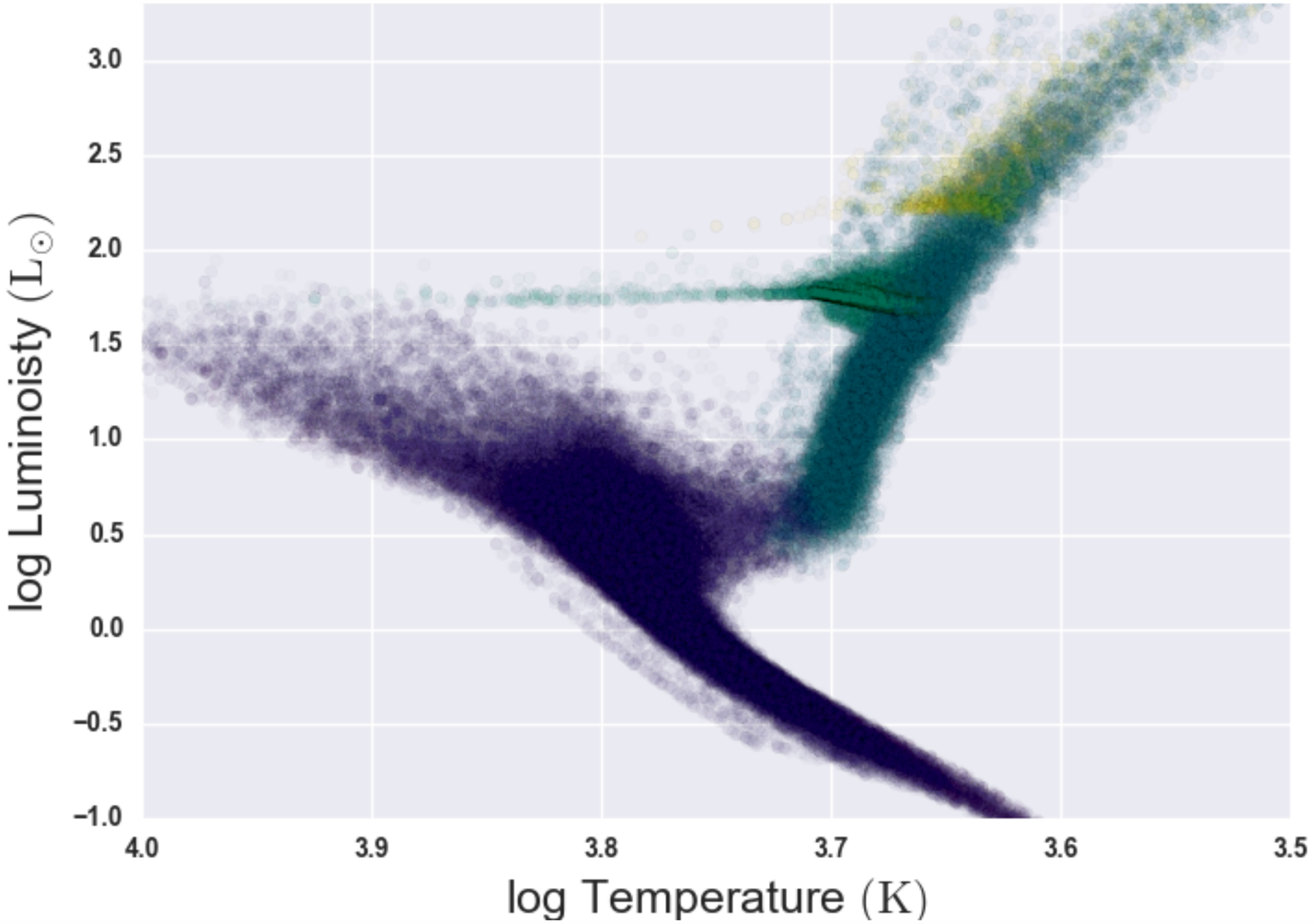


PBjam vision:

- Will peak bag solar-like pulsations
- No domain-specific expertise required
- Easy to use
- Provide a platform to adopt improvements over time
- https://github.com/grd349/PBjam



What types of stars are we talking about?

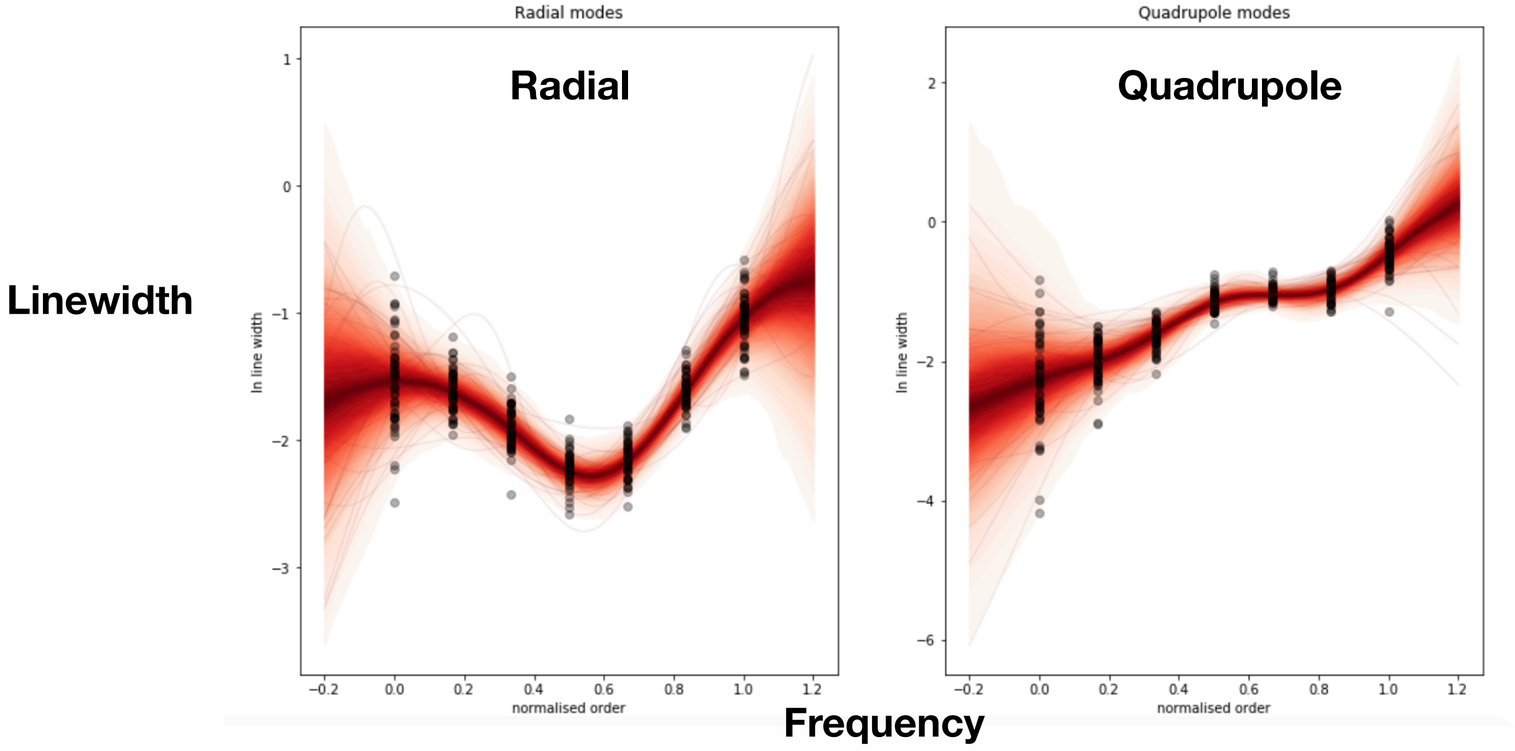


Solar-like pulsators

- Red Giants
- Subgiants
- Main sequence
- High SNR
- Low SNR
- Good frequency resolution
- Bad frequency resolution
- CoRoT/Kepler/K2/TESS/

PLATO

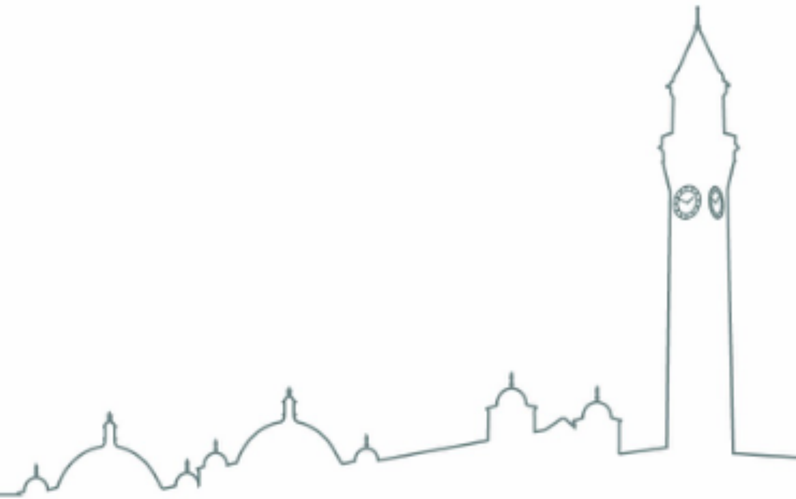
PBjam notes:

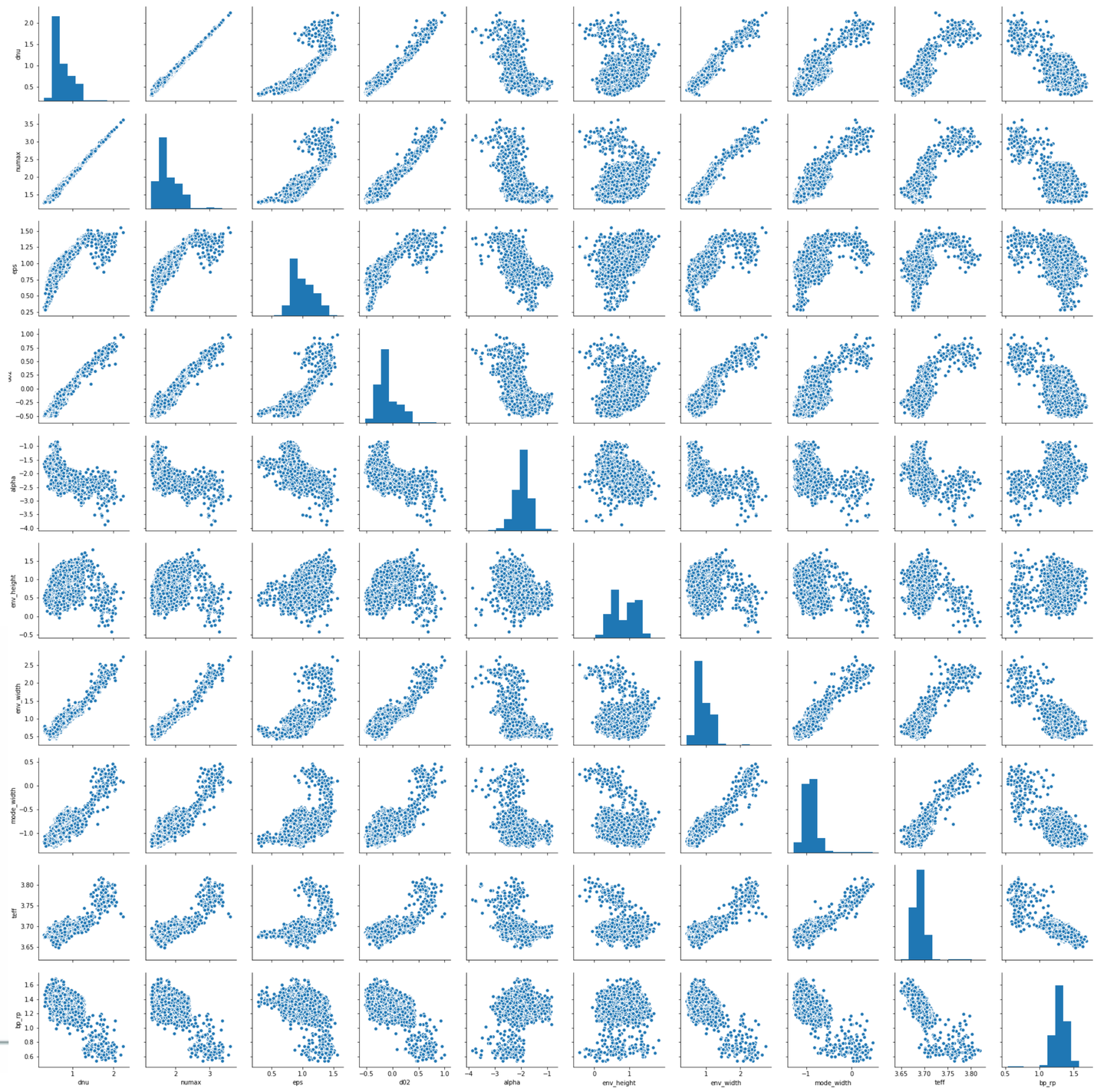


- So far radial, (dipole,) and quadrupole modes
- Prior setup for giants, sub giants, and dwarfs
- GP priors implemented
- Applied to TESS data
- Get involved!

PBjam very brief method:

$$P(\theta \,|D) \propto P(\theta)\, P(D \,|\theta)$$





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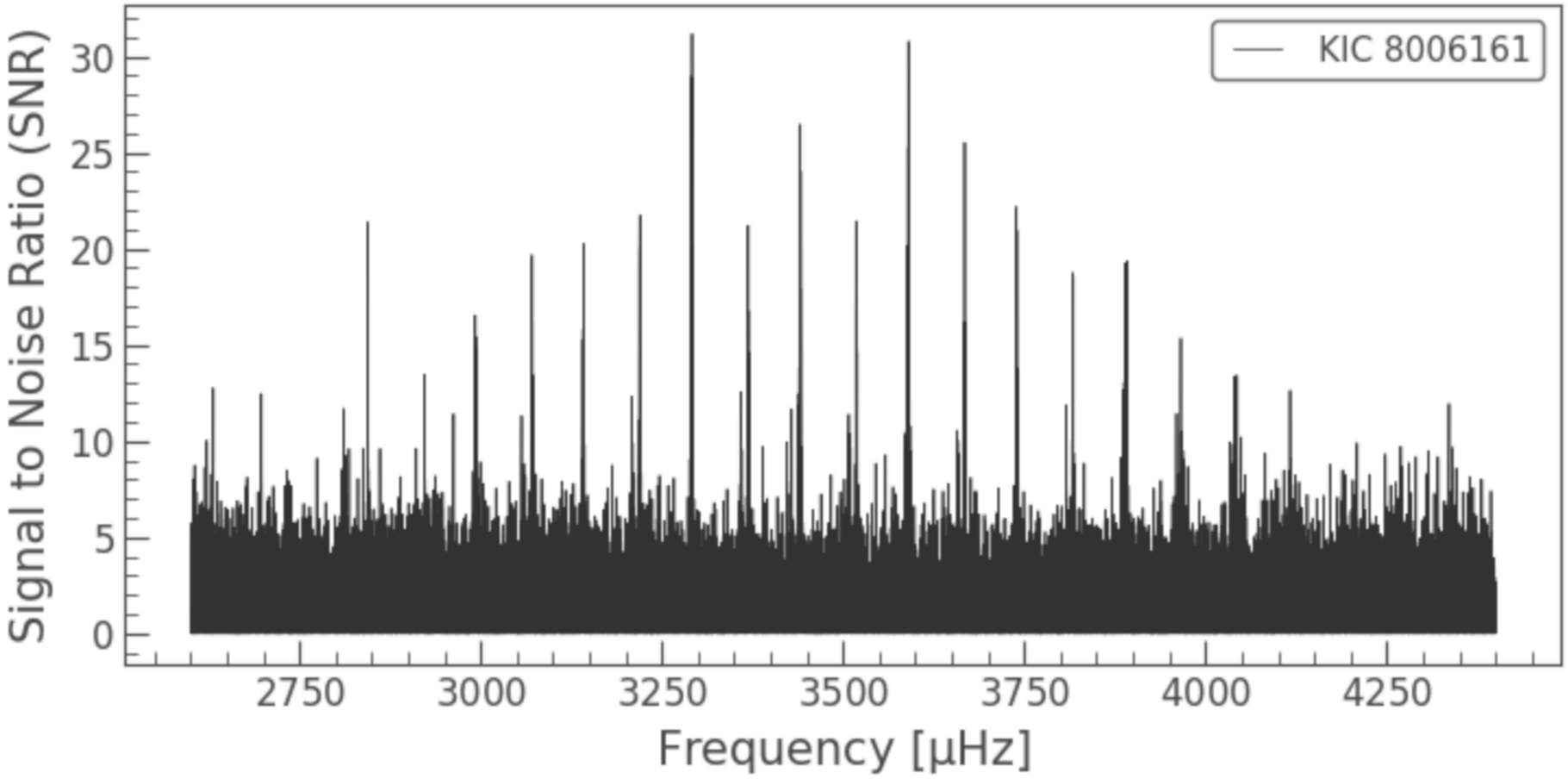

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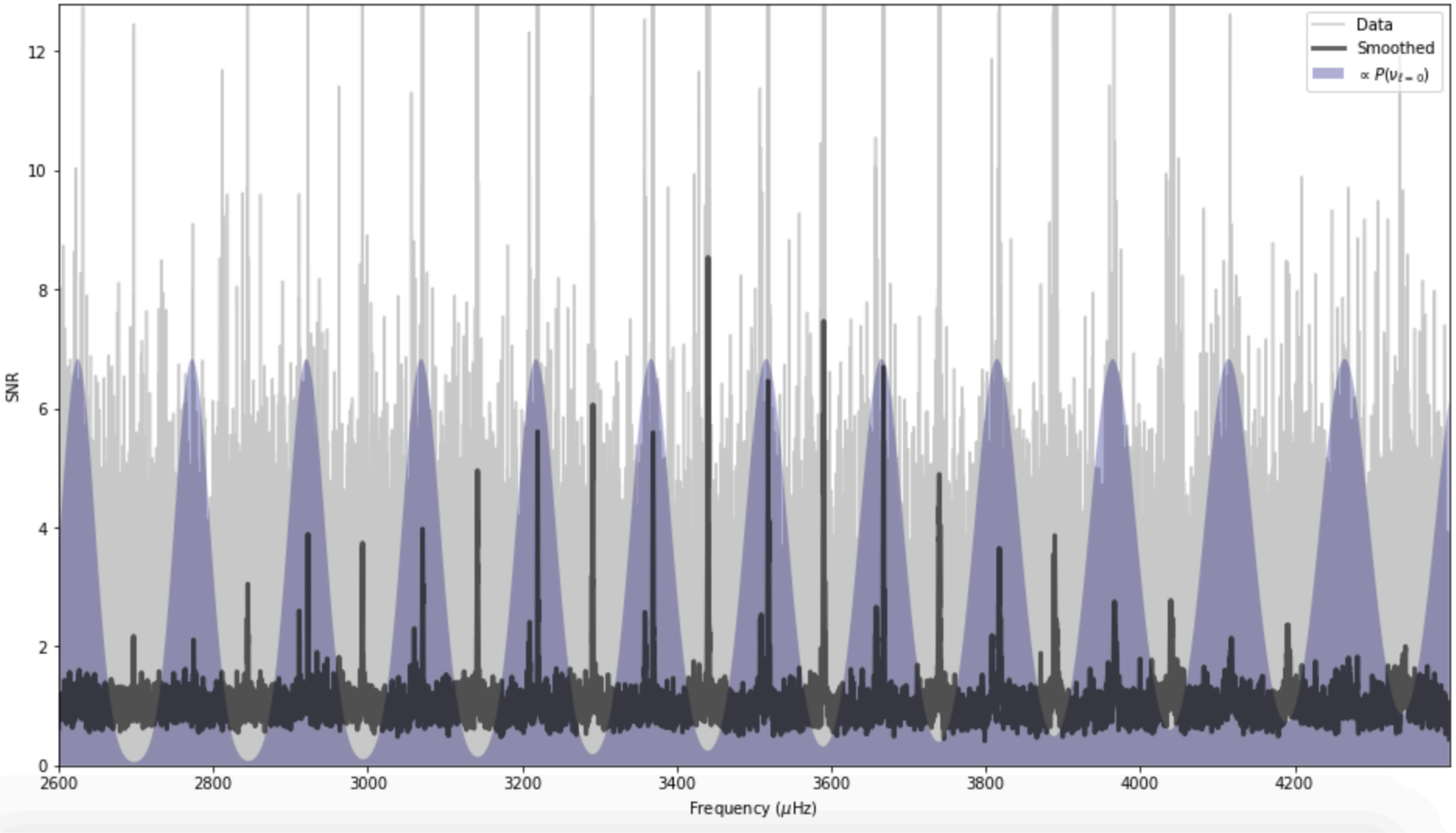

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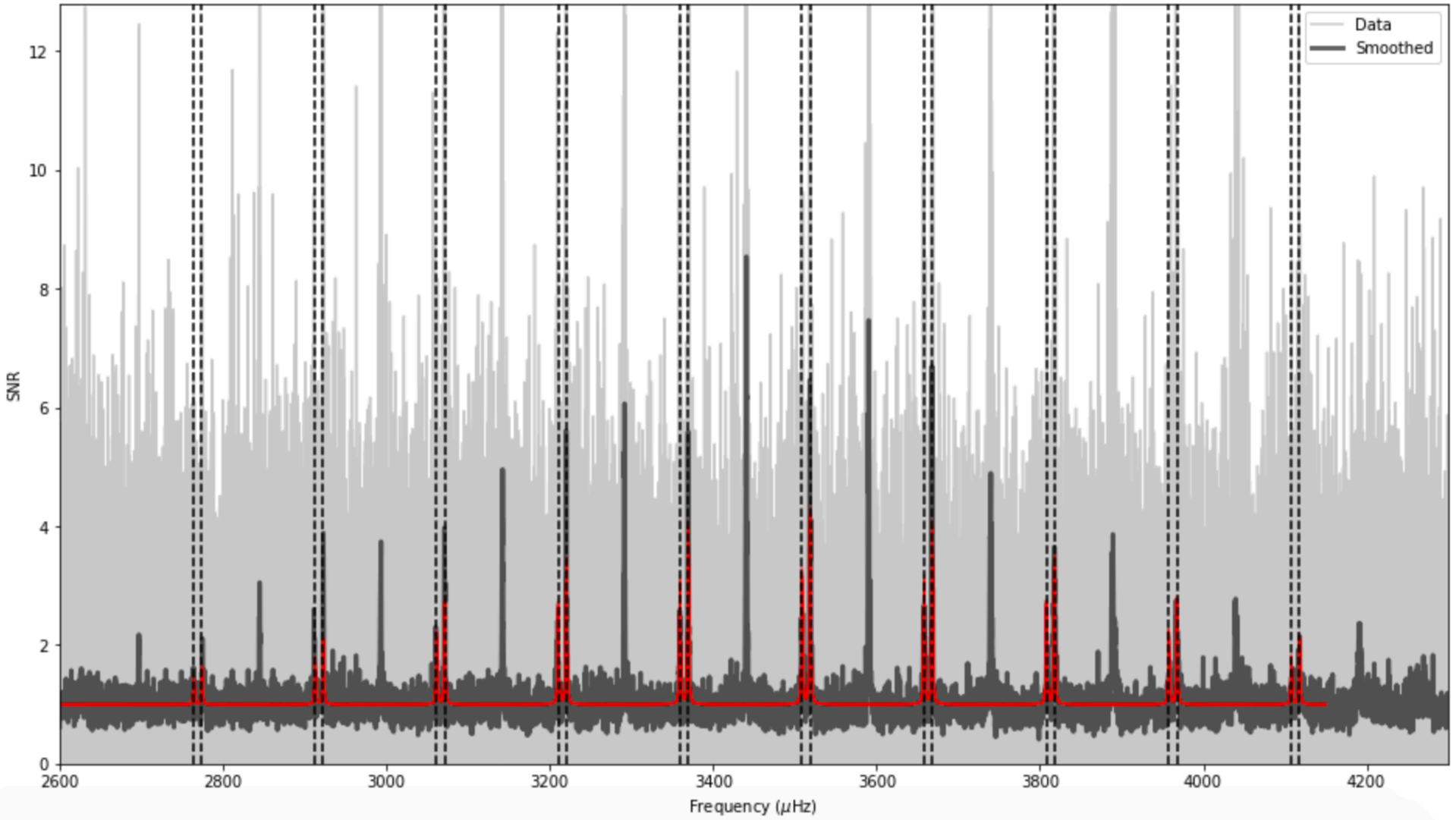

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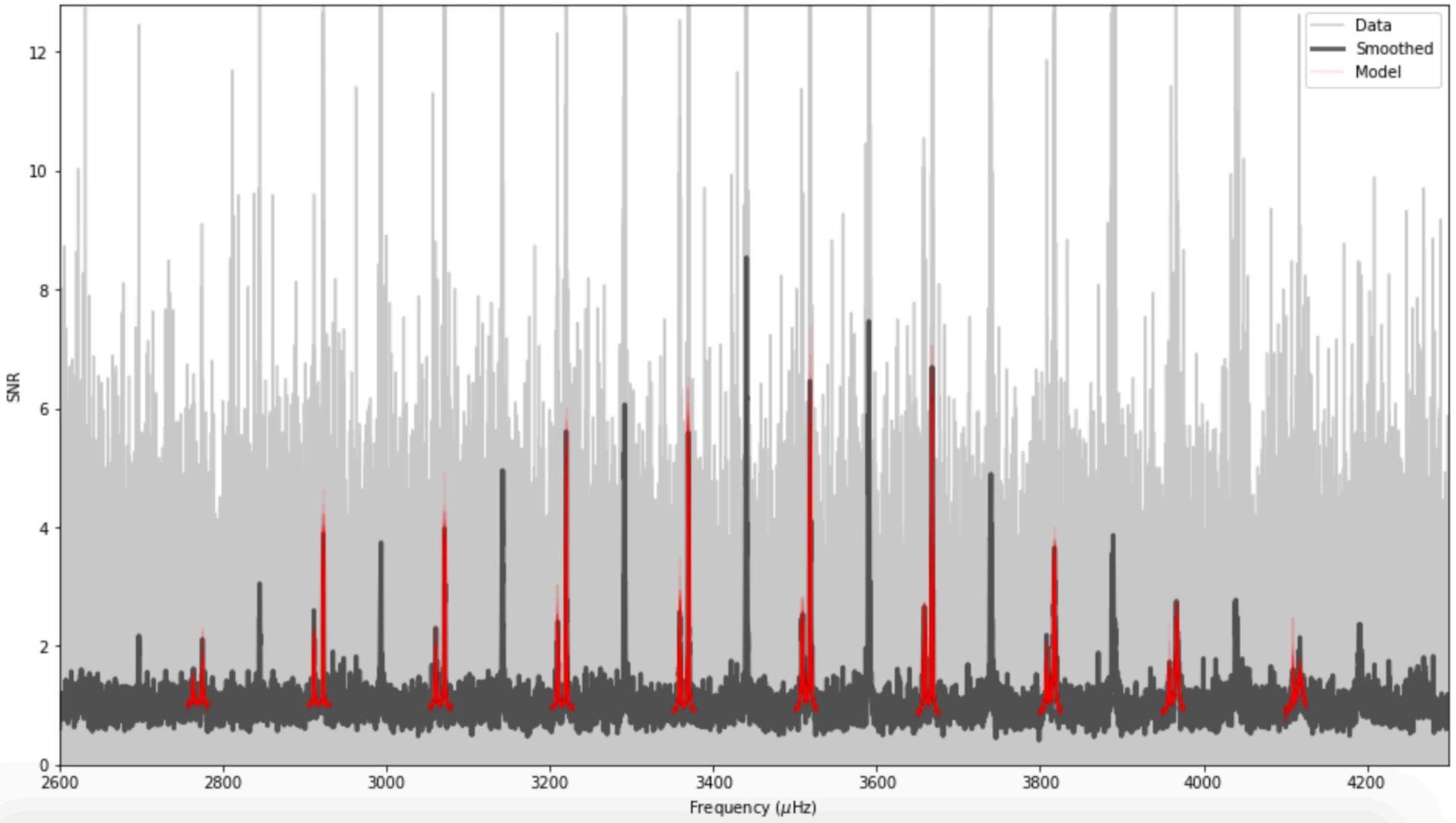

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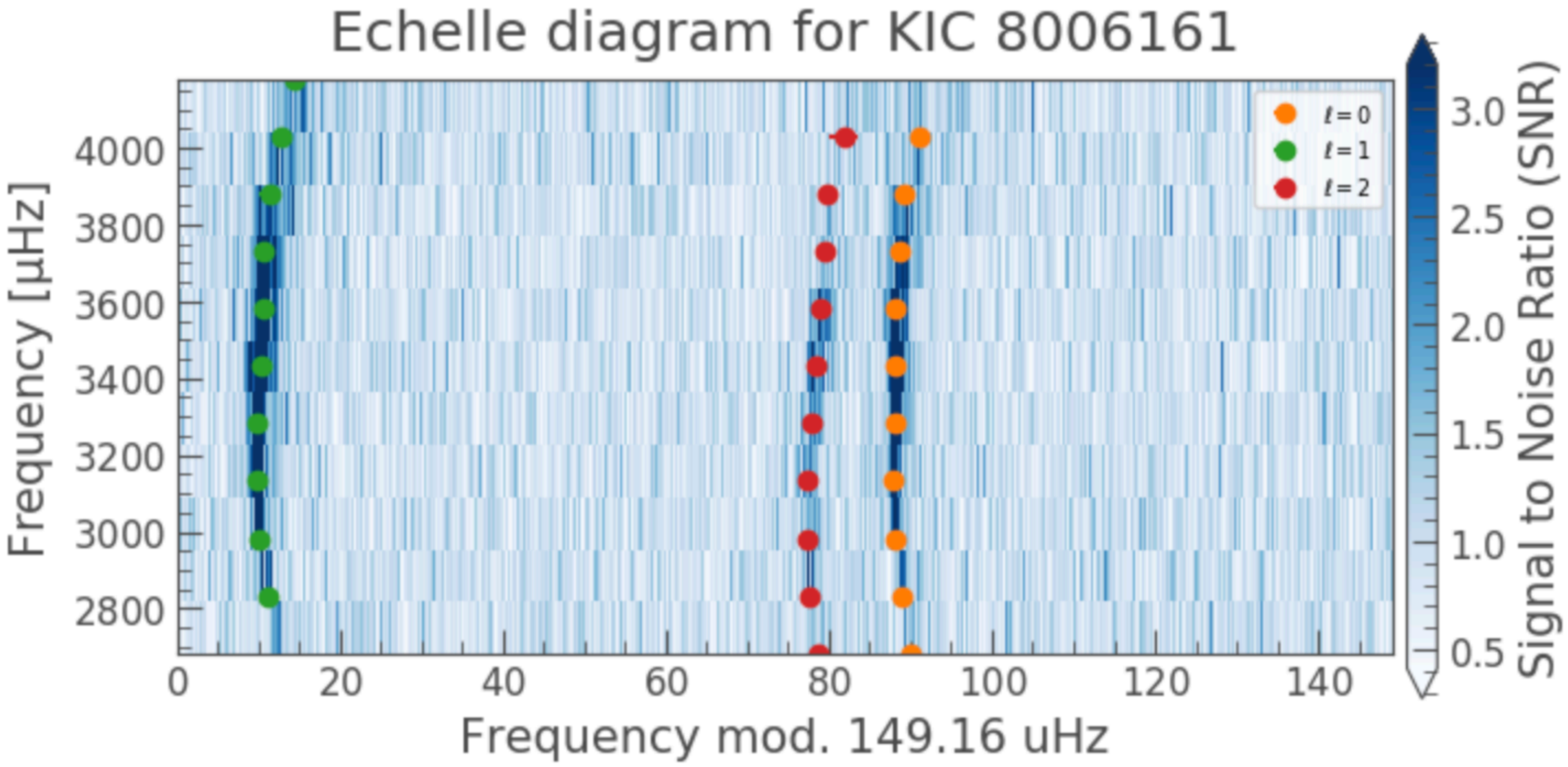

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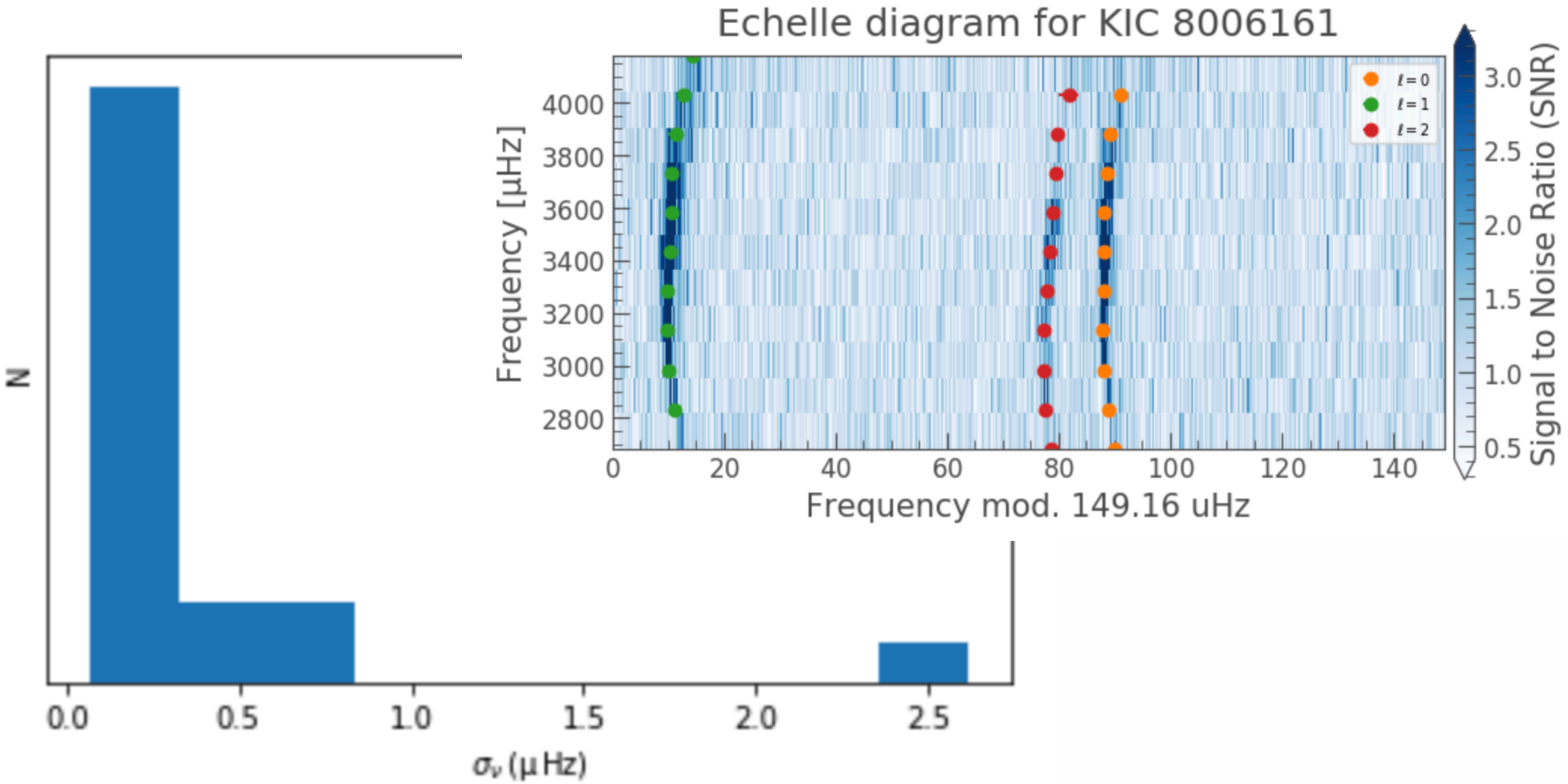

PBjam Kepler Giant:

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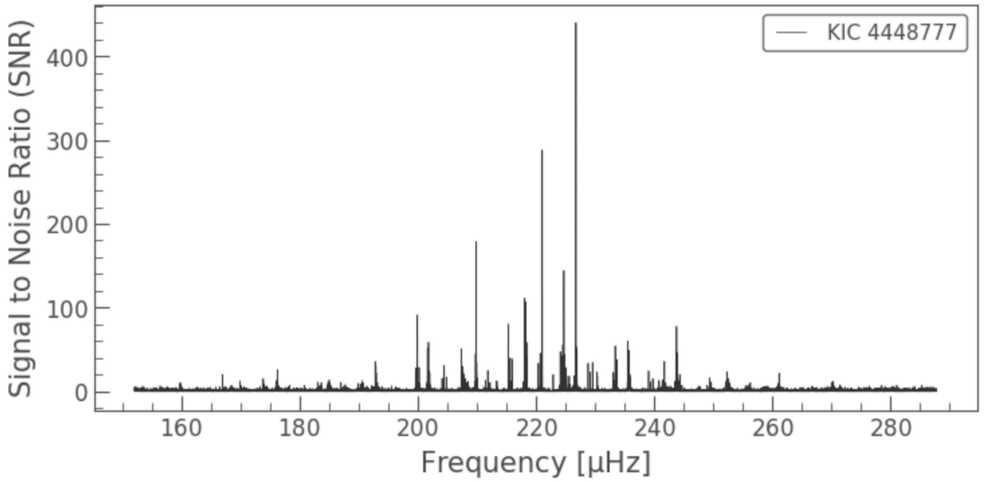

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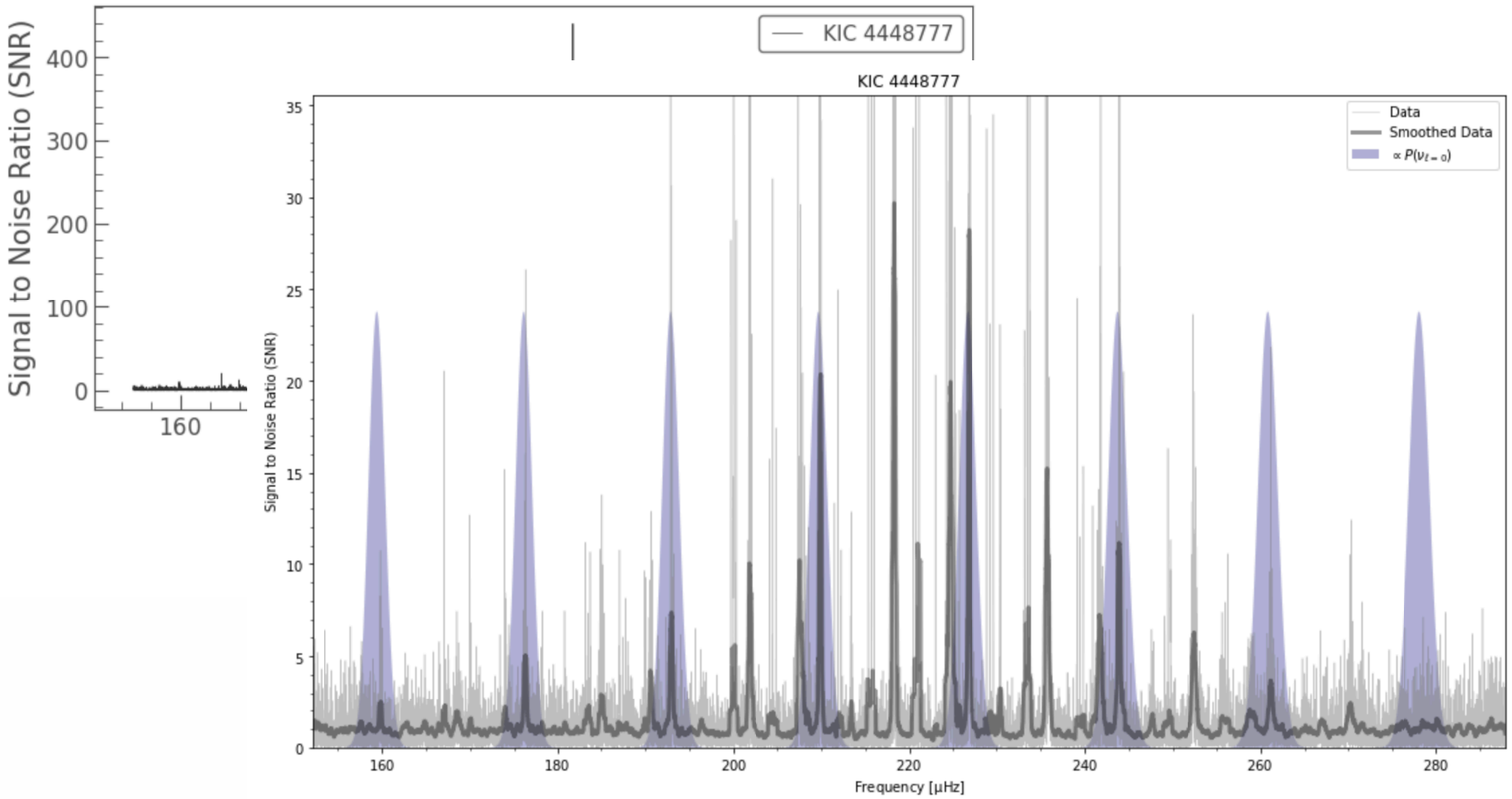

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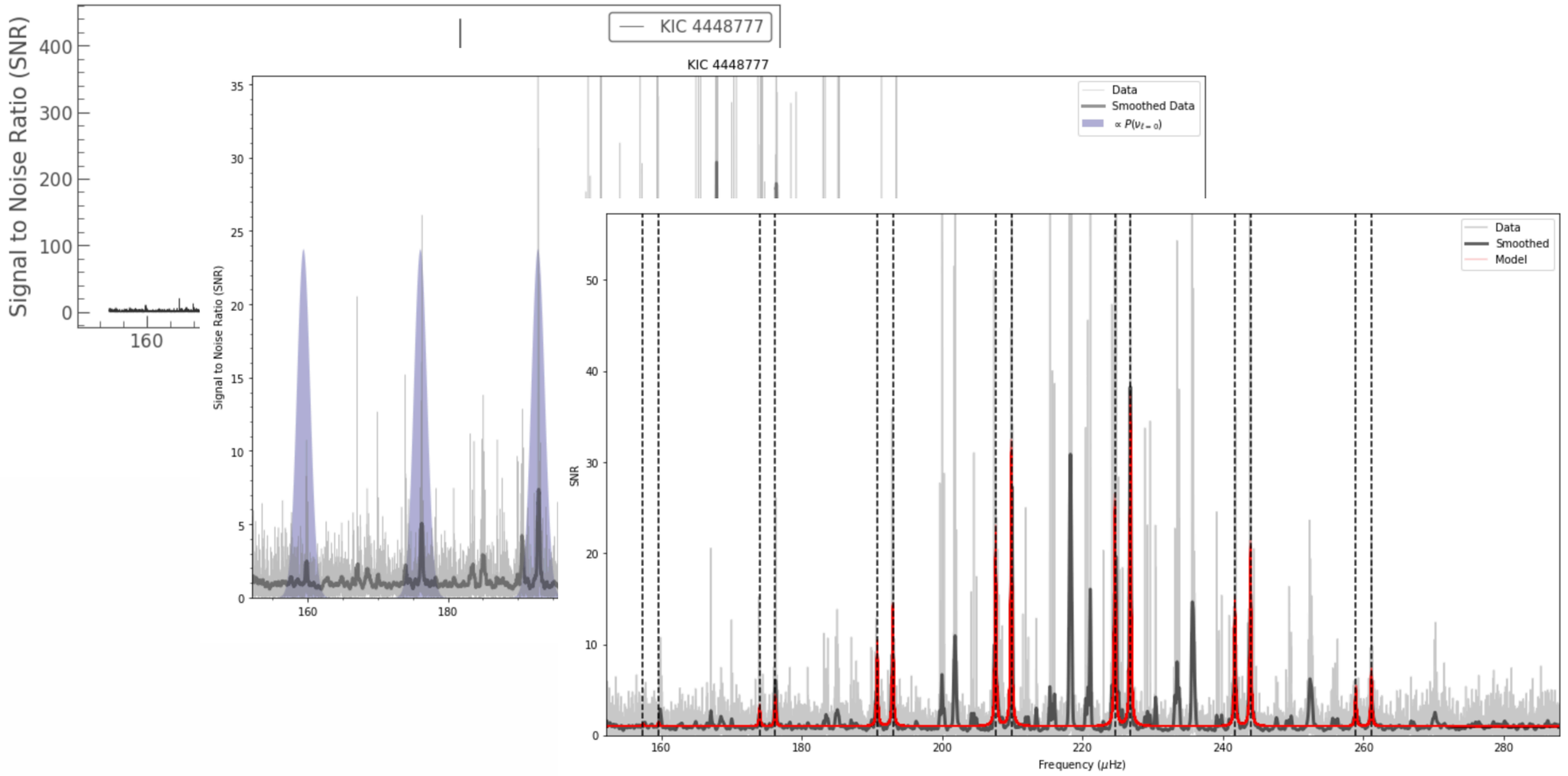

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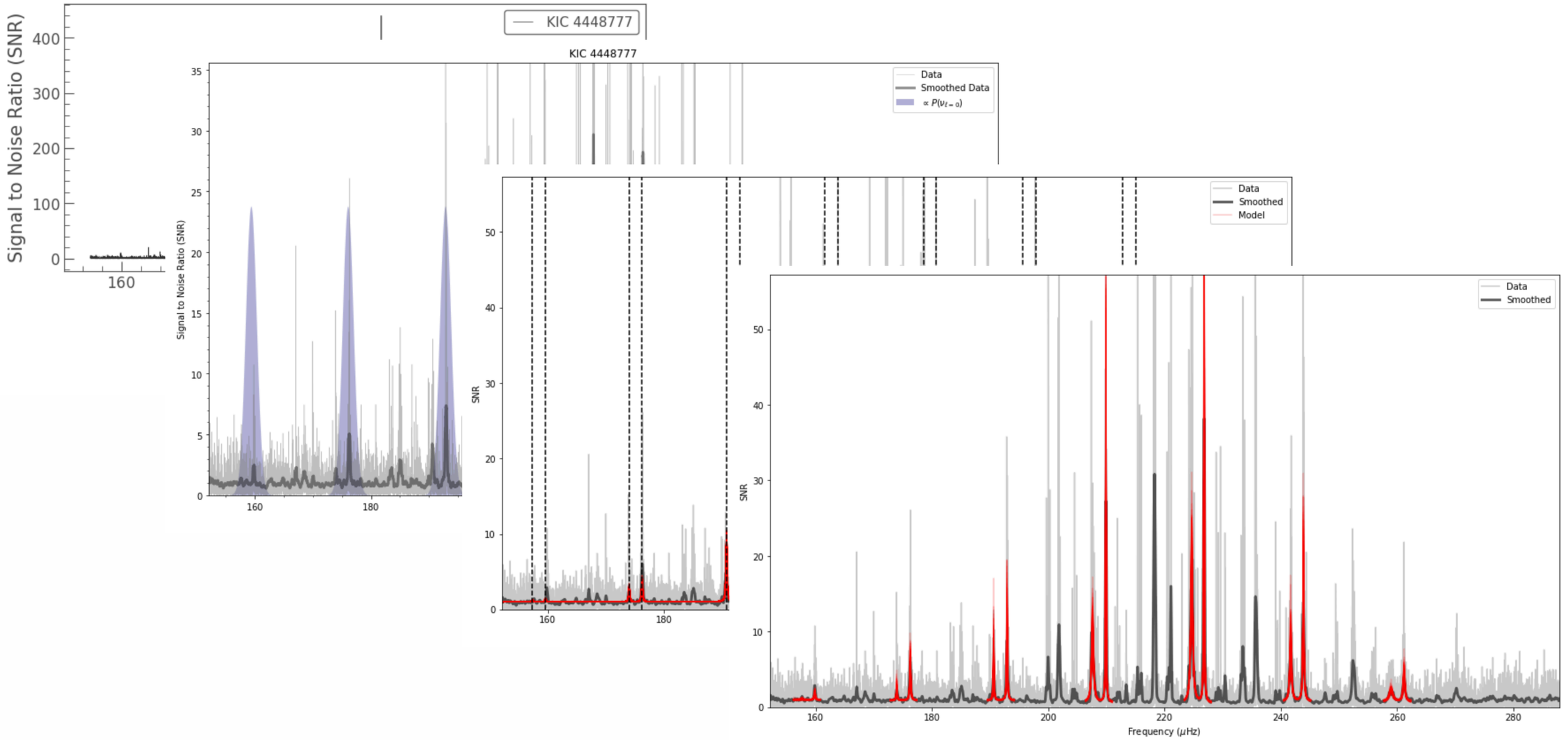

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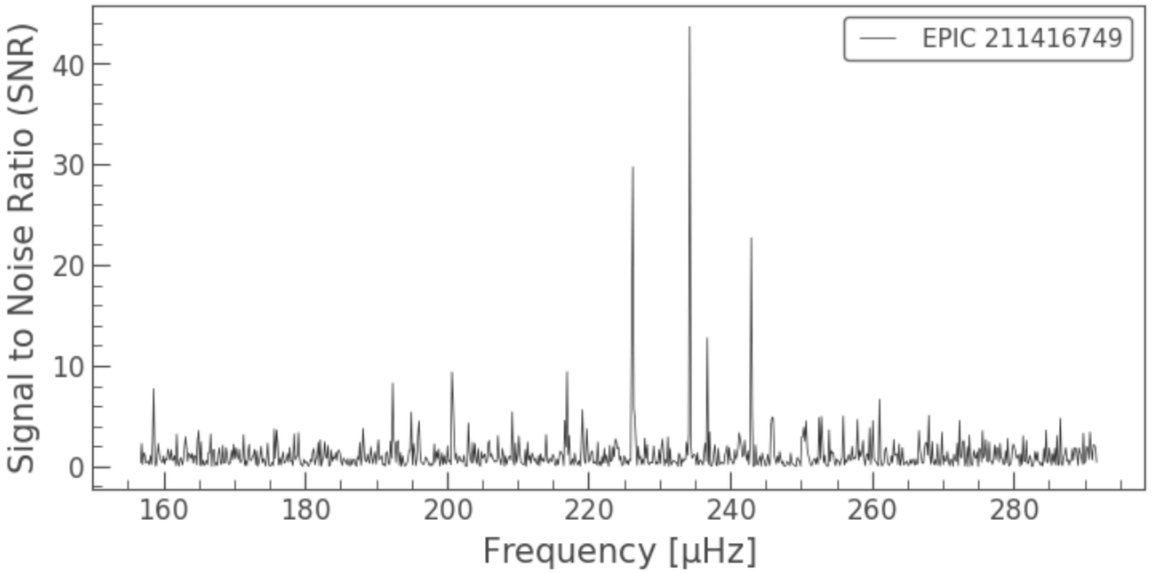

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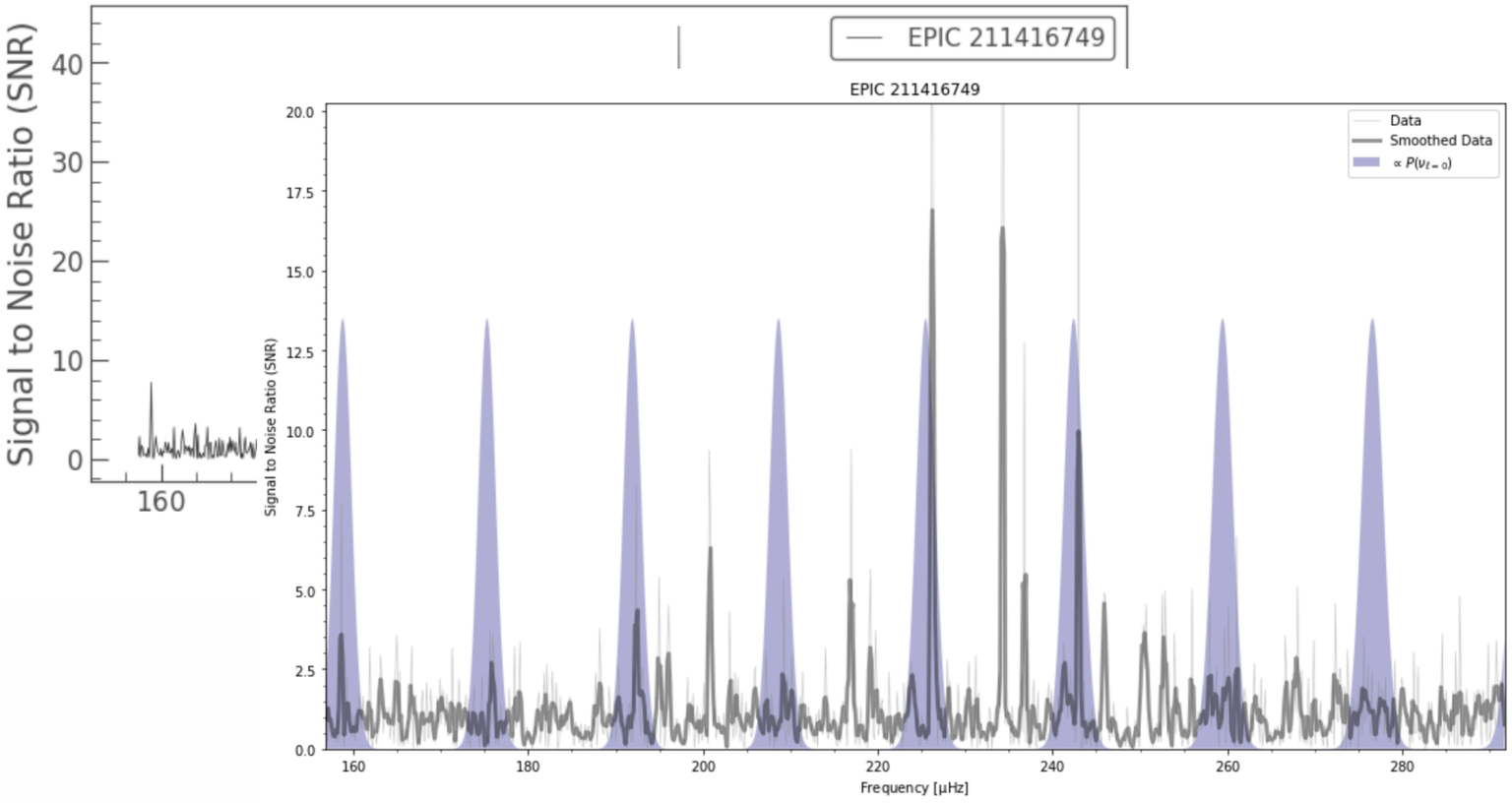

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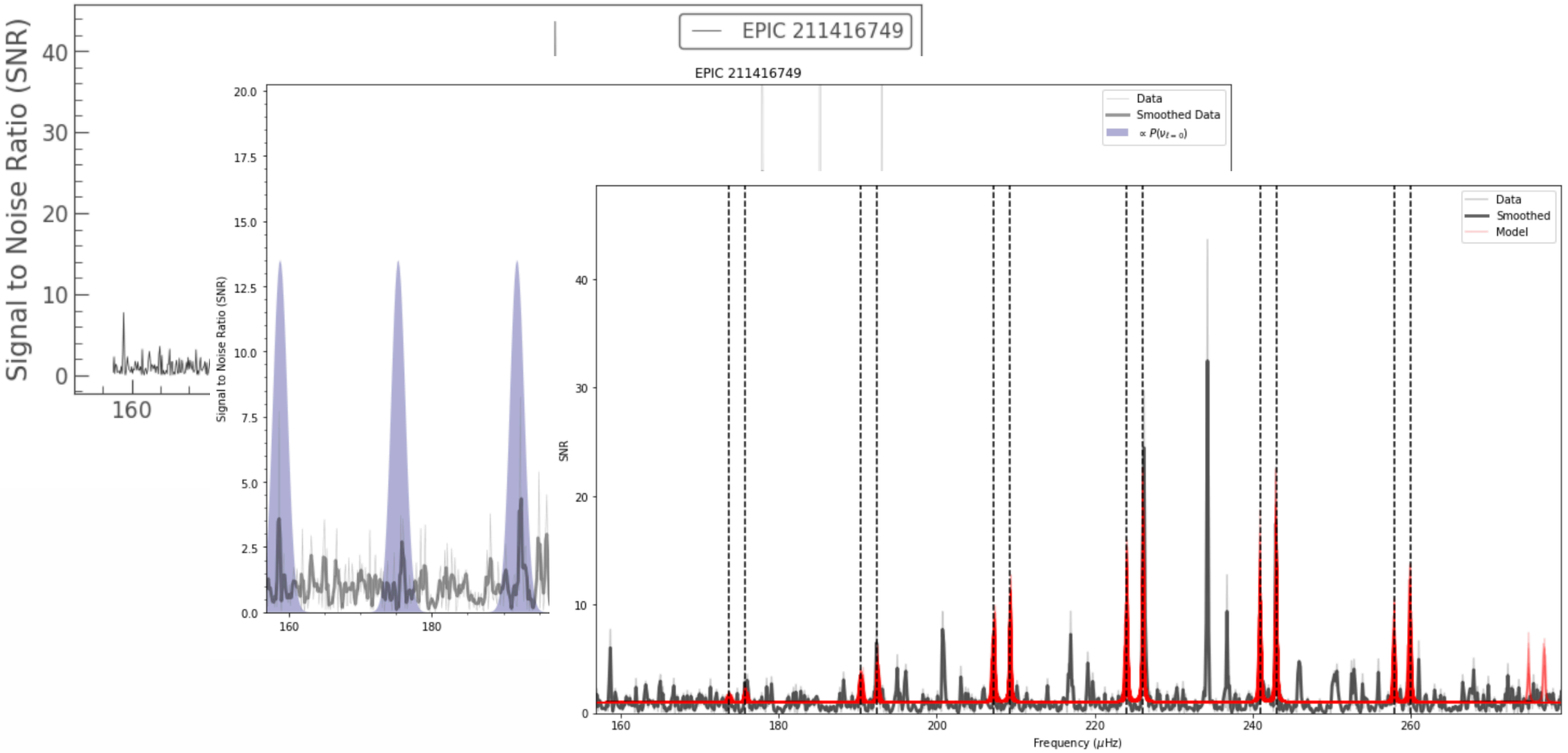

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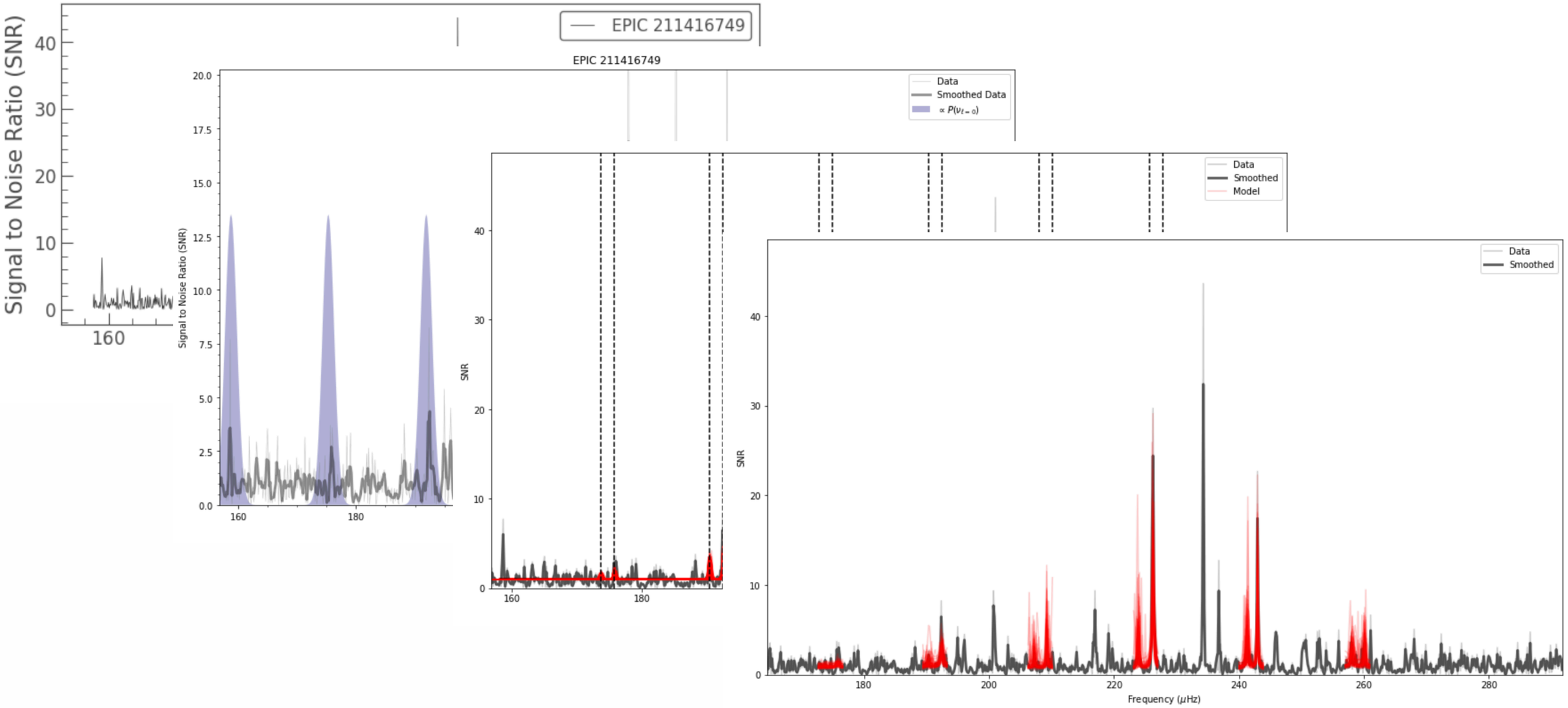

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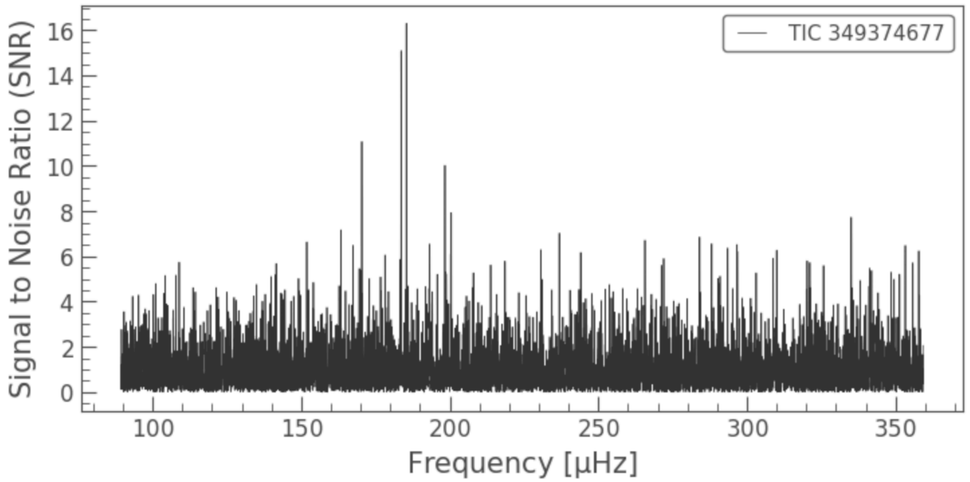

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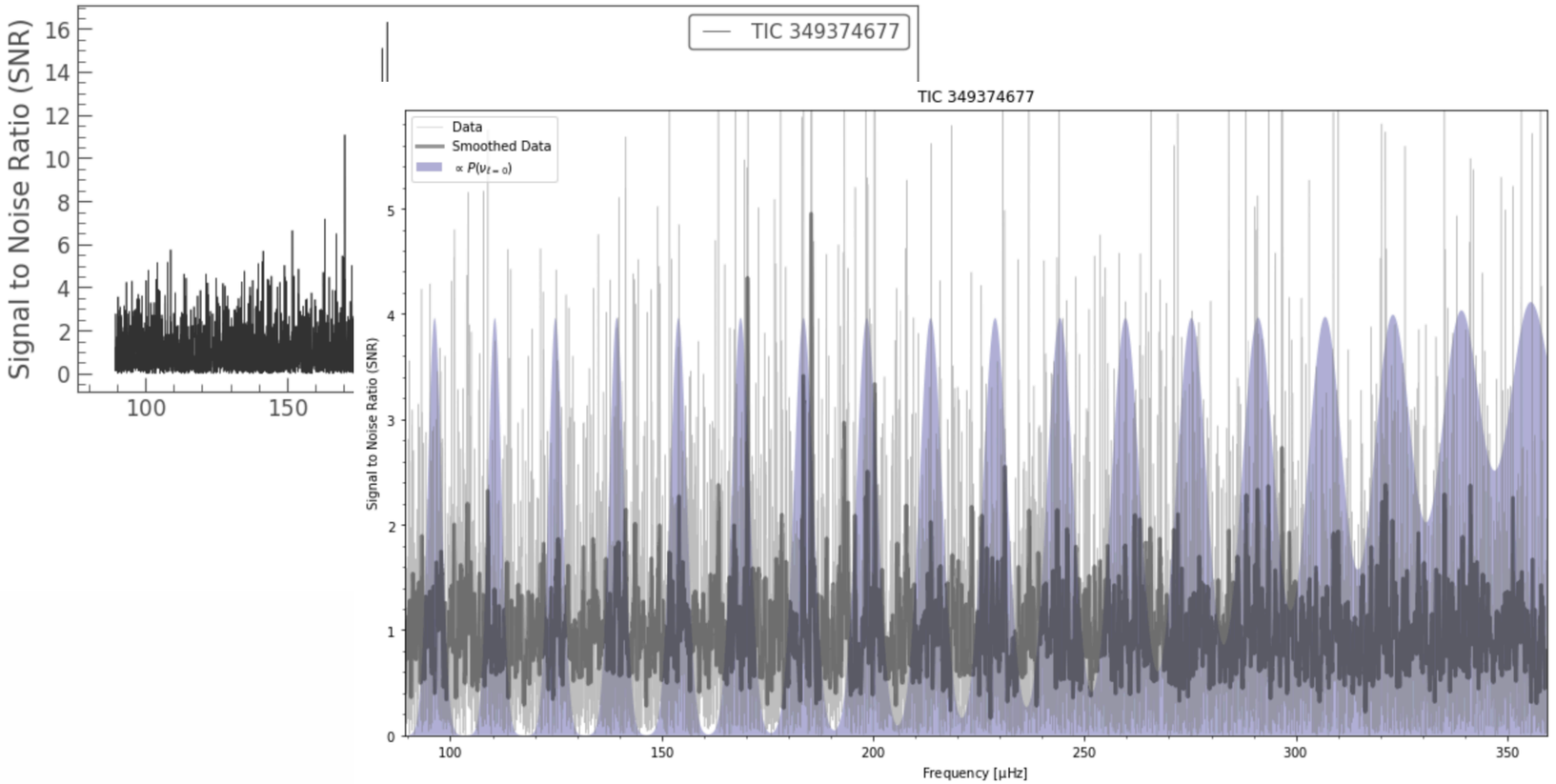

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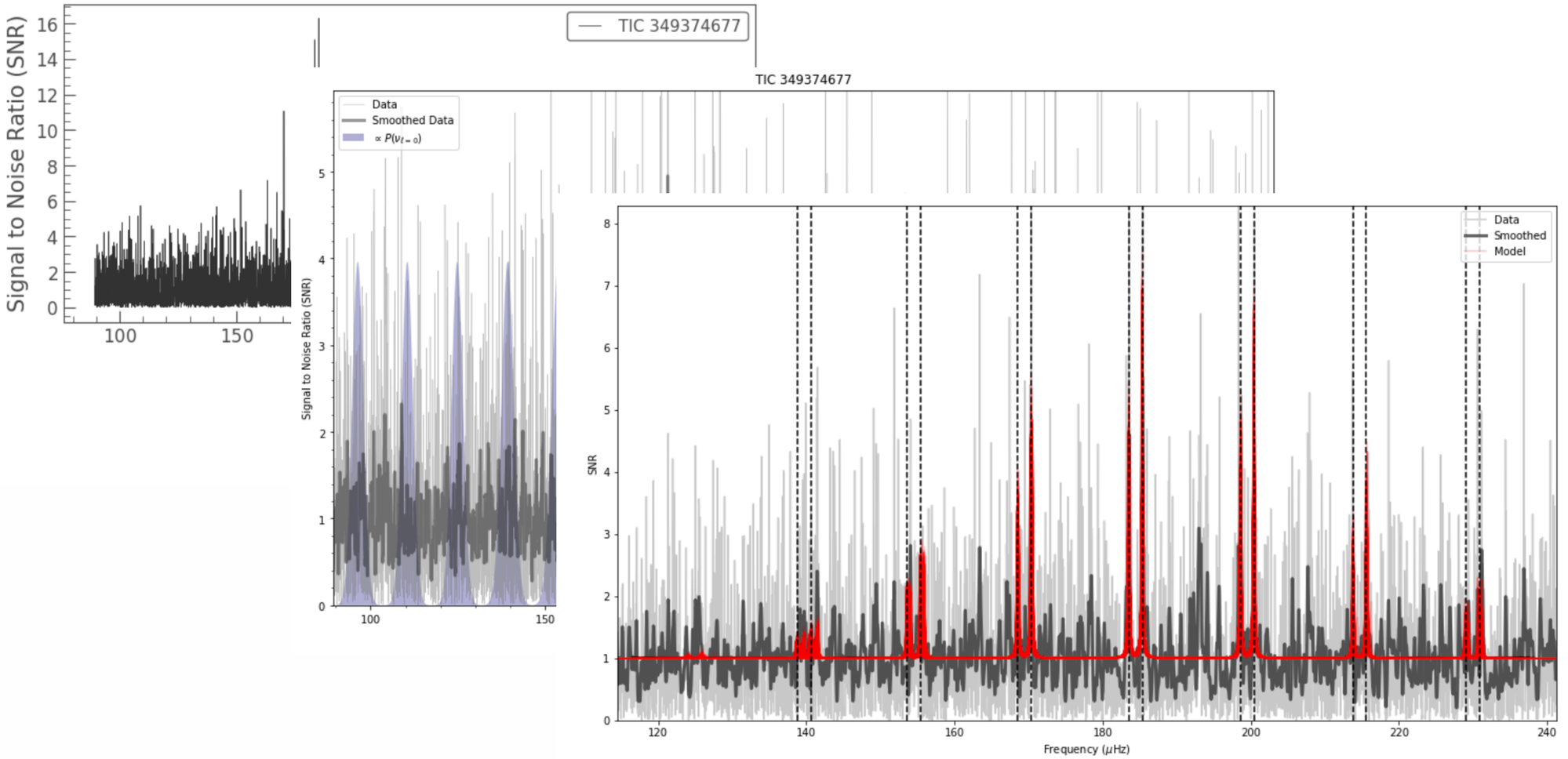

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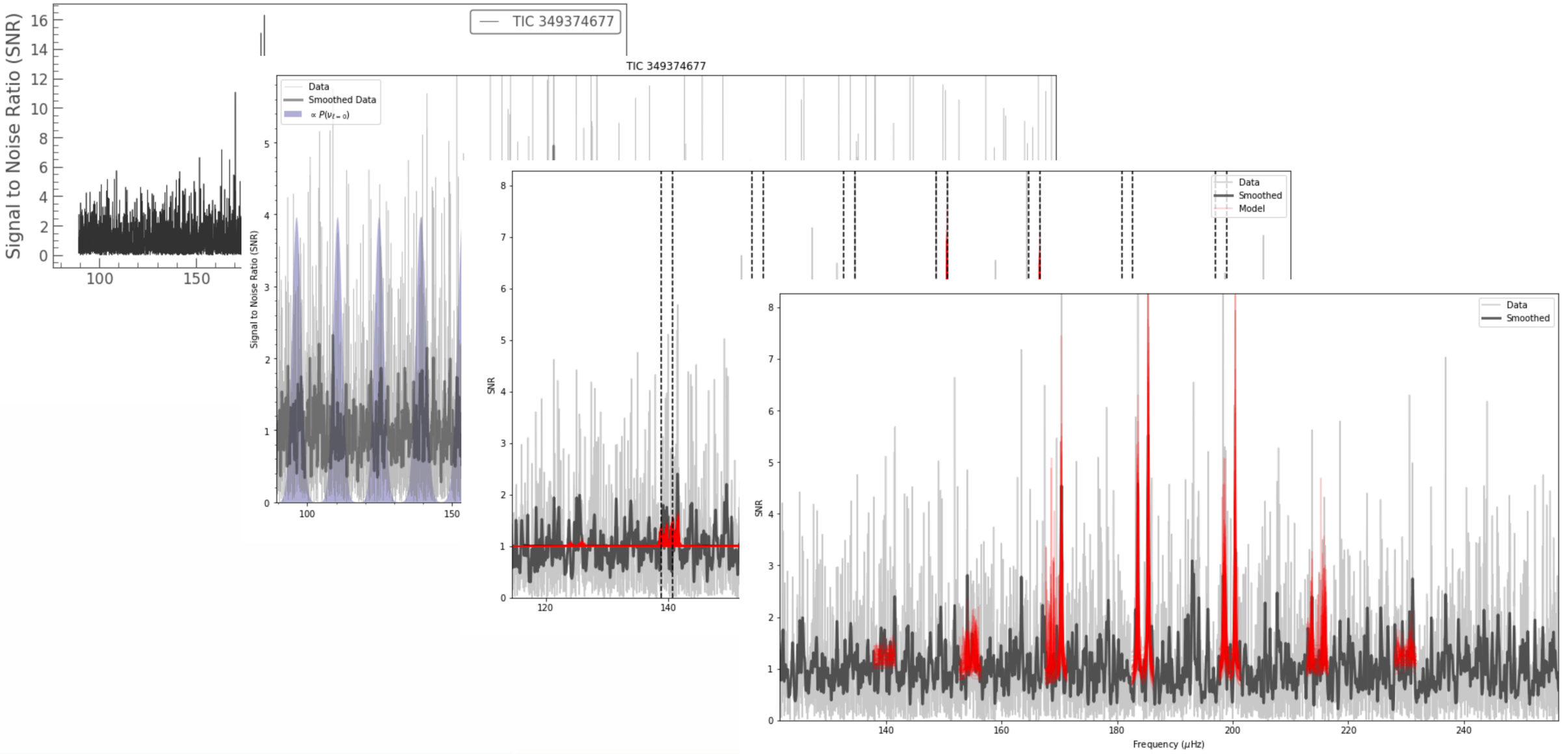

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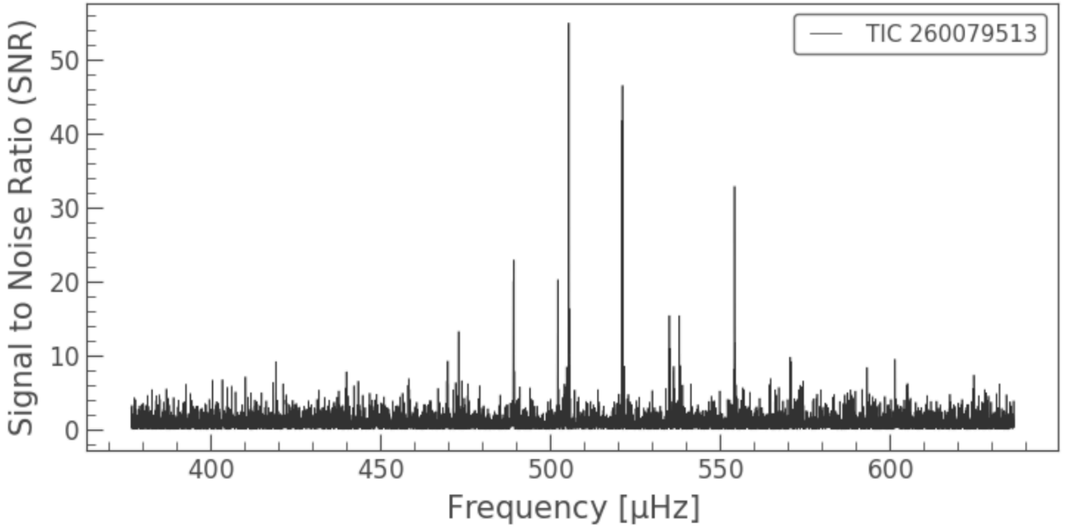

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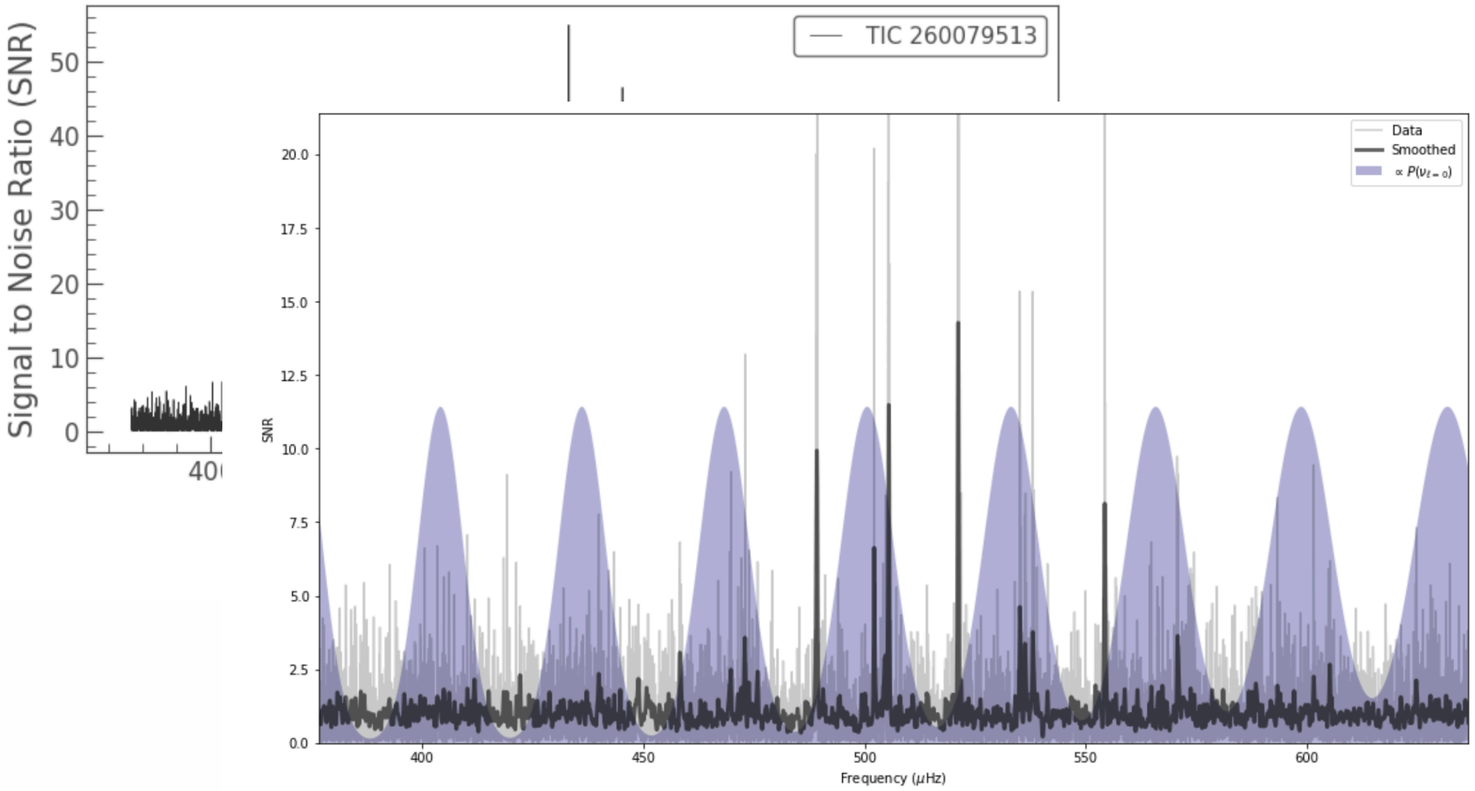

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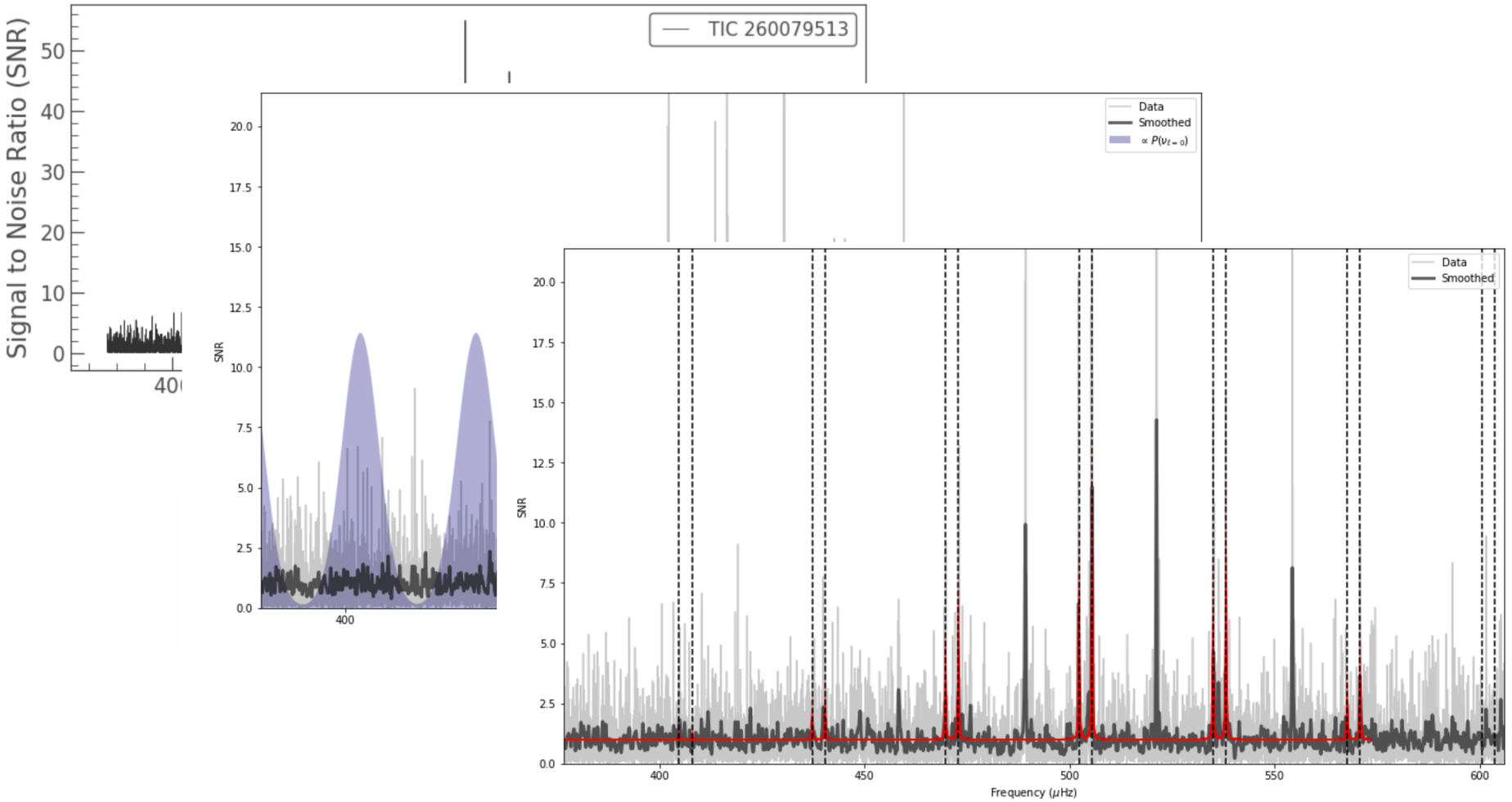

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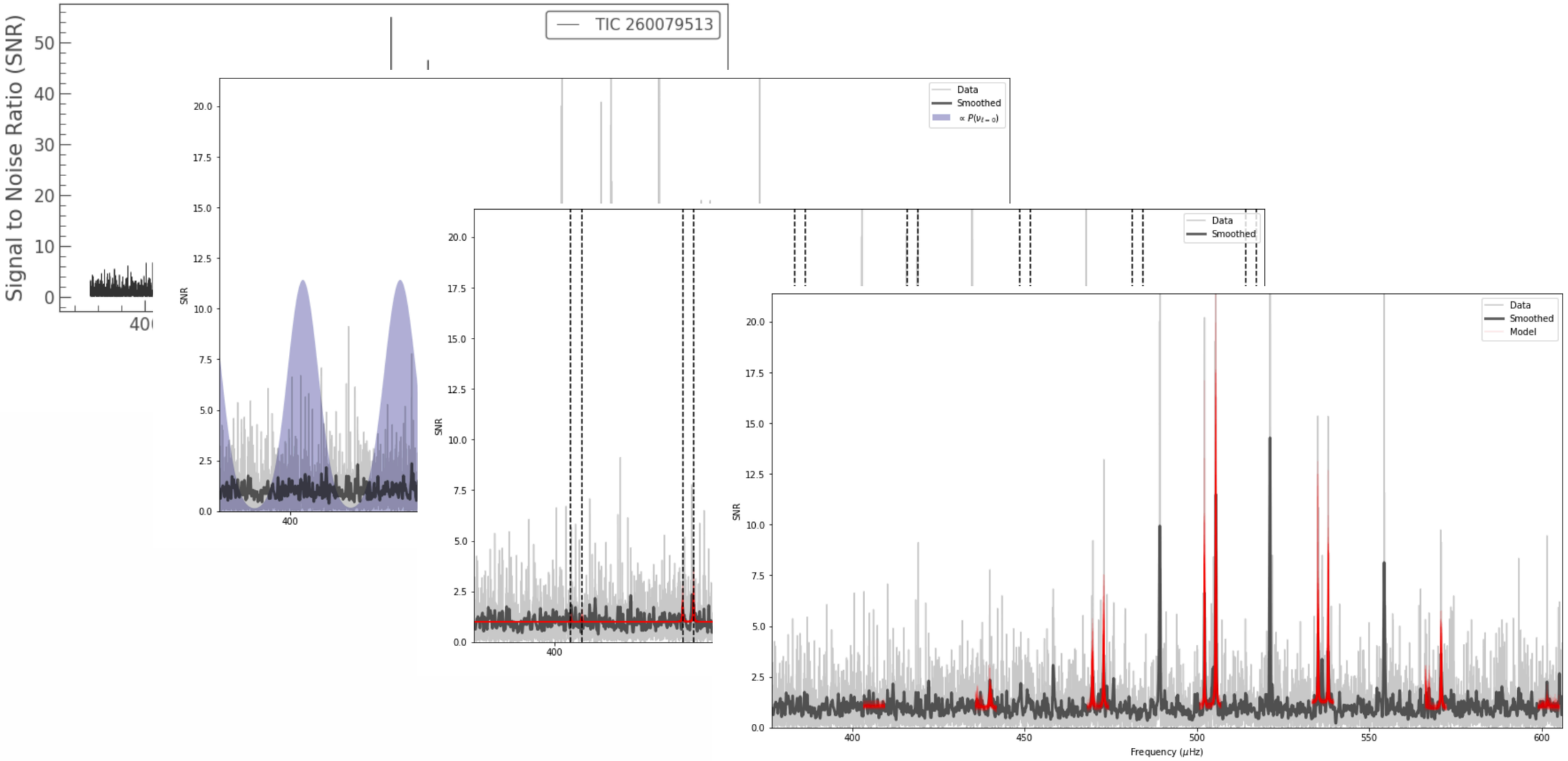

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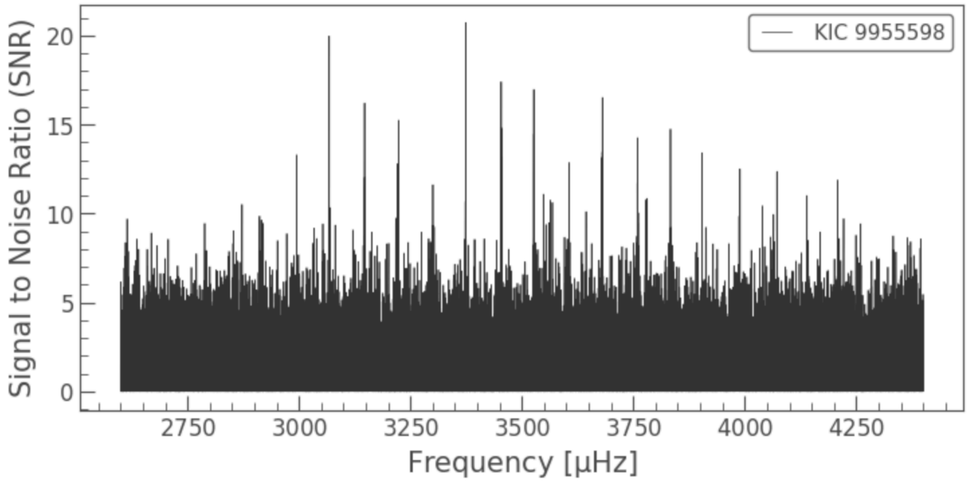

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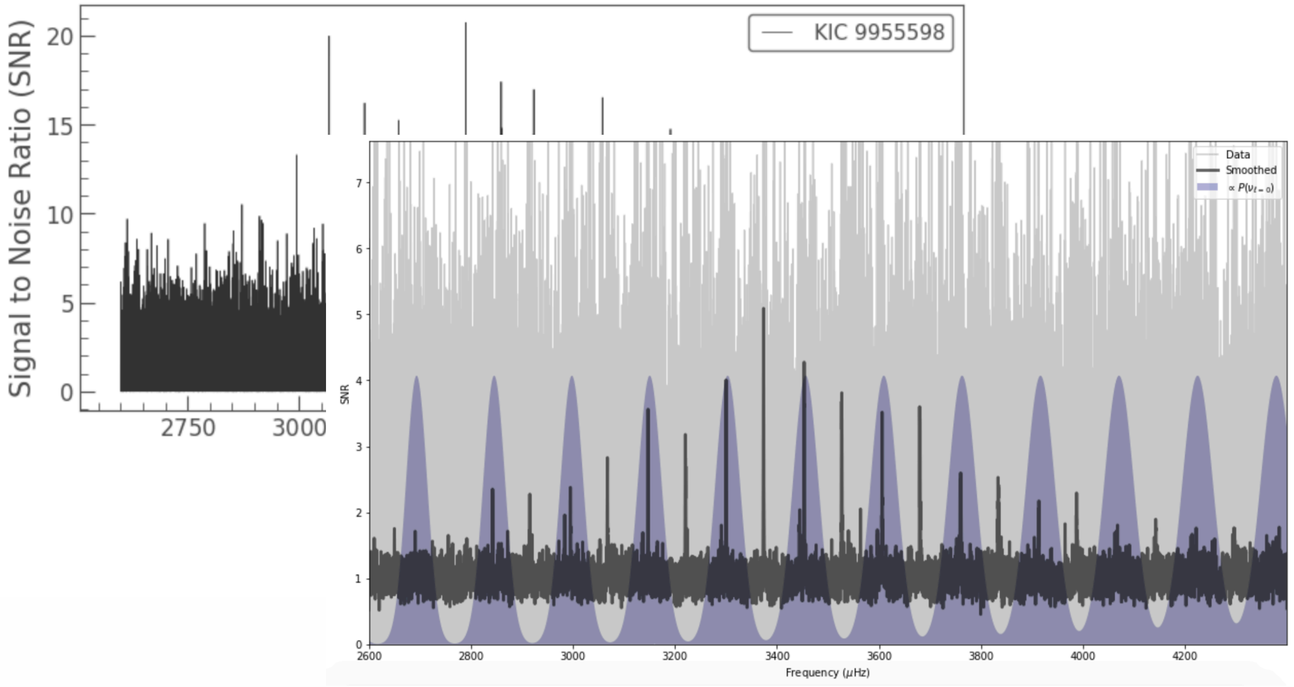

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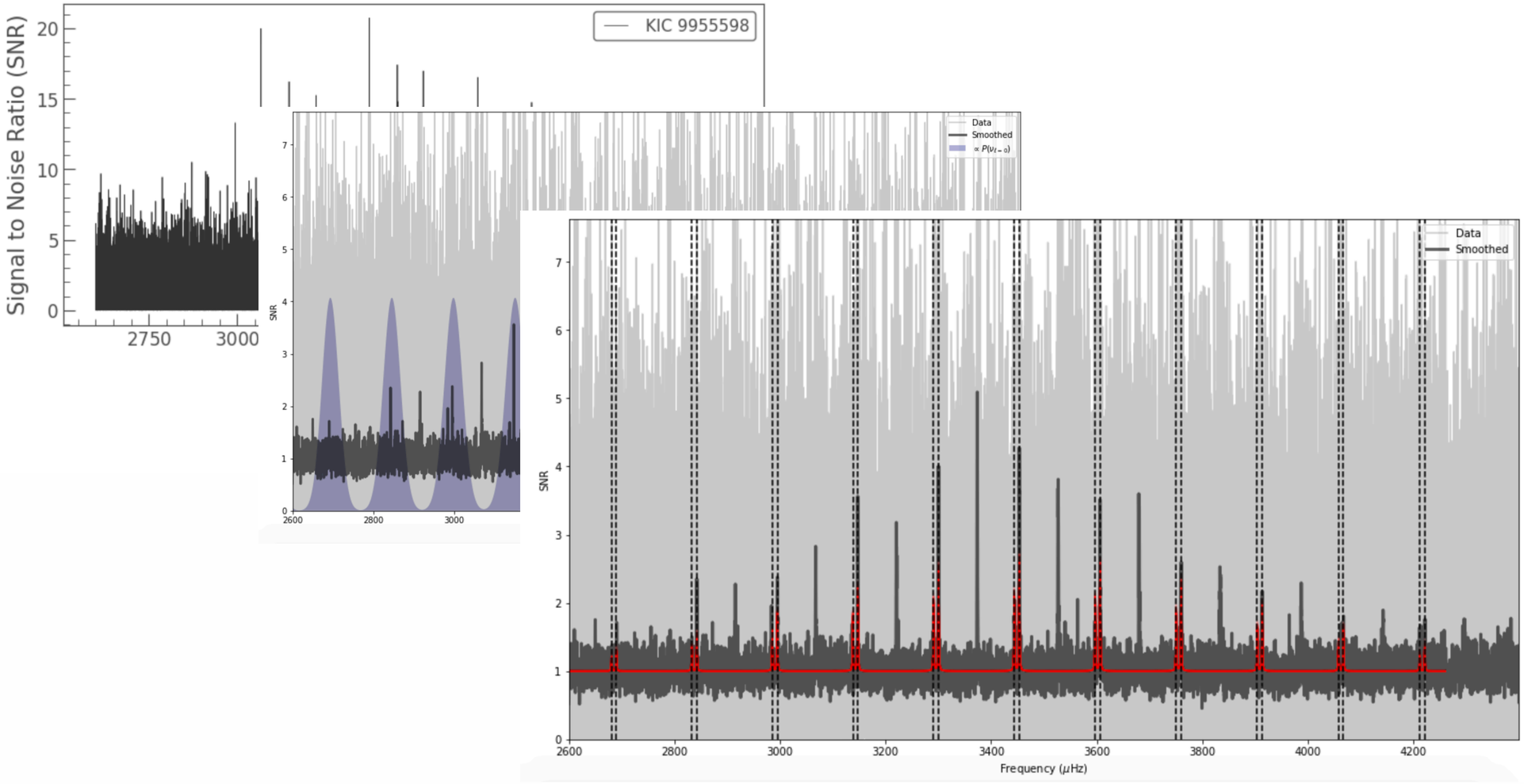

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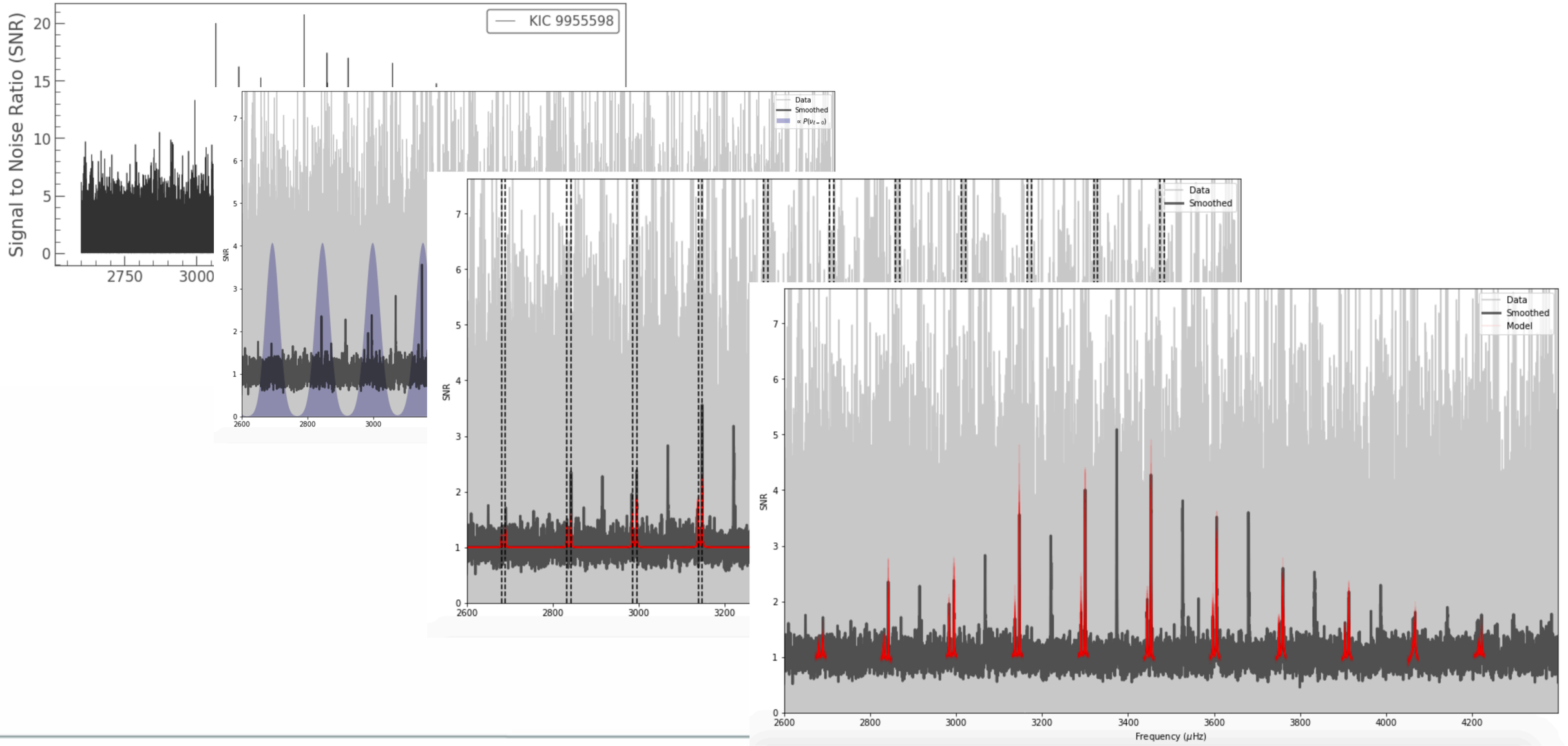

PBjam conclusions:

- Will peak bag solar-like pulsations
- No domain-specific expertise required
- Easy to use
- Provide a platform to adopt improvements over time
- PLATO asteroseismic parameter estimation