Power Spectral Density Calculation Code

Version 2
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Scope

- Spectral content will be calculated by participants
- Consistent data reduction methods are needed to aid in workshop-wide analysis
- Thanks to Eduardo Molina (Embraer) for the script

Usage

- **About the script:**
  - The script uses Welch's method to reduce PSD noise
  - Overlapping segments and Hanning functions are used
- **Script can be called from the command line**

```
python compute_psd_10212024.py -f yourFileName.csv -o #overlap -n #samples_per_segment
```

Recommended settings:

  - `#overlap` = 0.5 (50% overlapping segments)
  - `#samples_per_segment` = signal length / 2 (three overlapping segments)

- **Script will read a csv file with time-dependent pressure data**
  - First column: time with a fixed dt (in seconds)
  - Second column: refer to "Power spectra data template"
  - Comma between columns 1 and 2. No trailing comma
  - Advise if an alternate data file format is needed
- **Contact Eduardo Molina with questions or inquiries**

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