



Statistical Consequences of Fat Beats

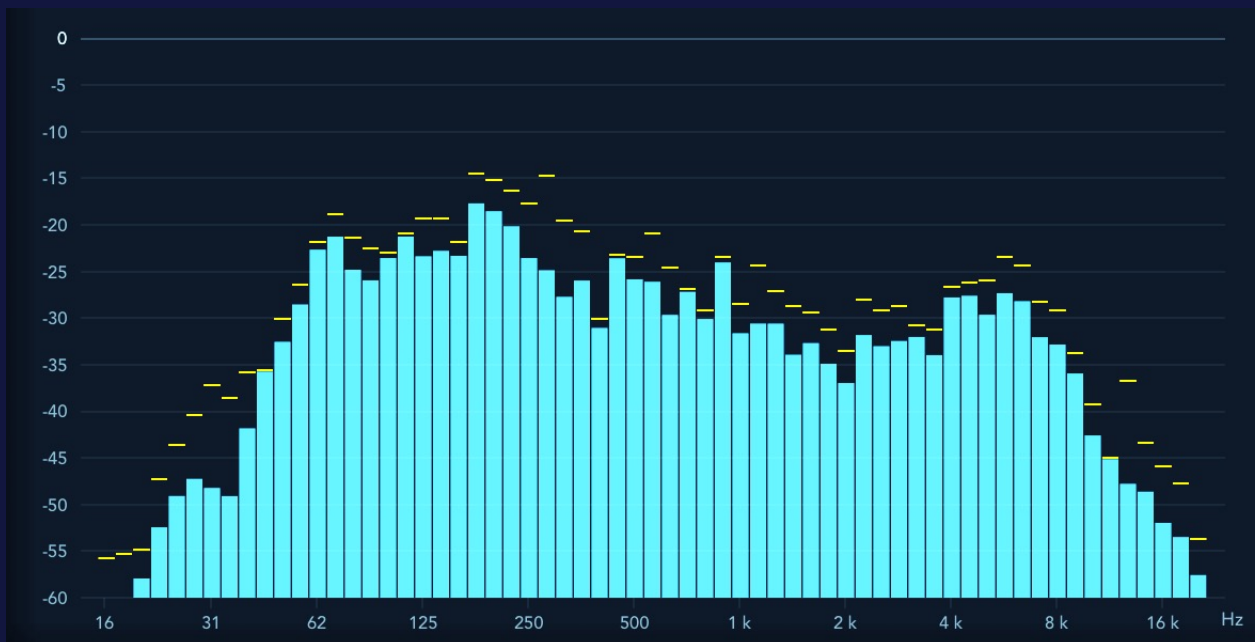
EXPLORING THE DYNAMICS OF AUDIO SIGNALS

Christian Luther

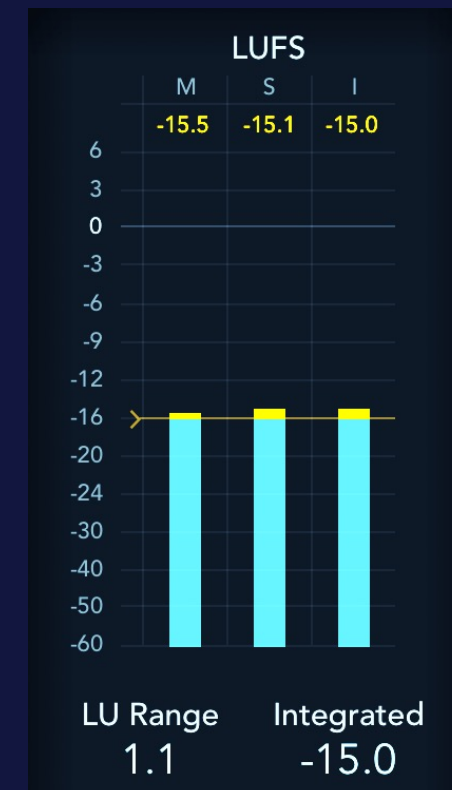
Critical Listening Is Hard!

METERING TOOLS CAN HELP

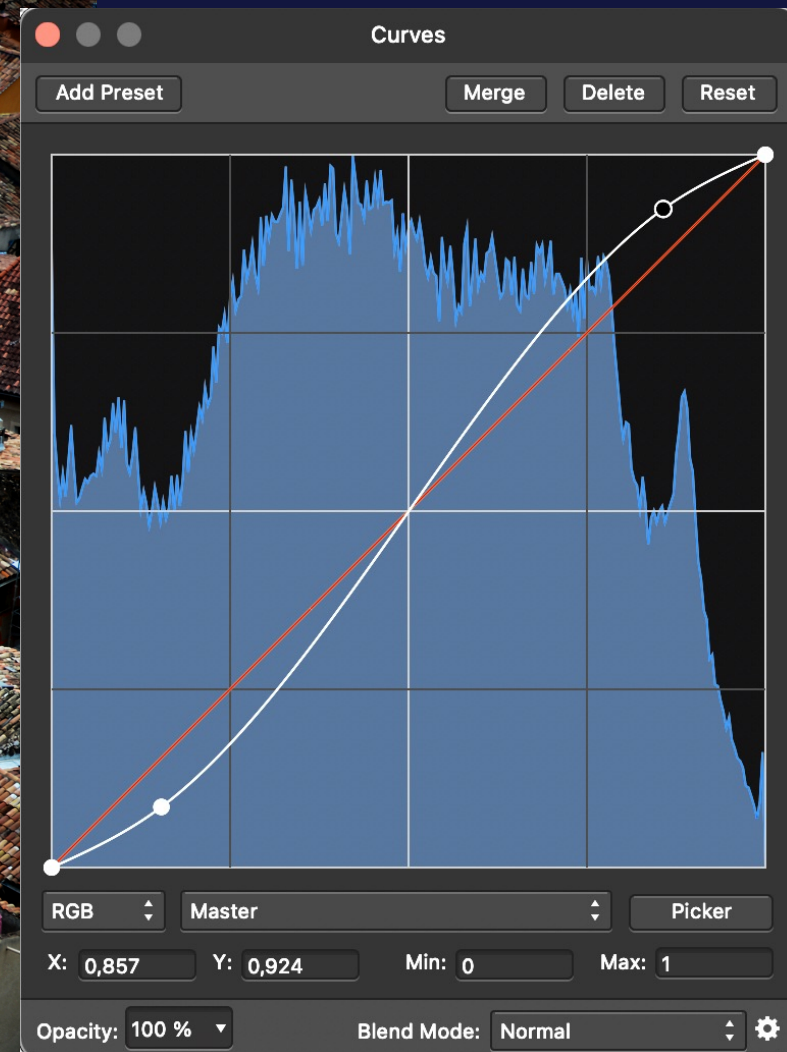
Metering



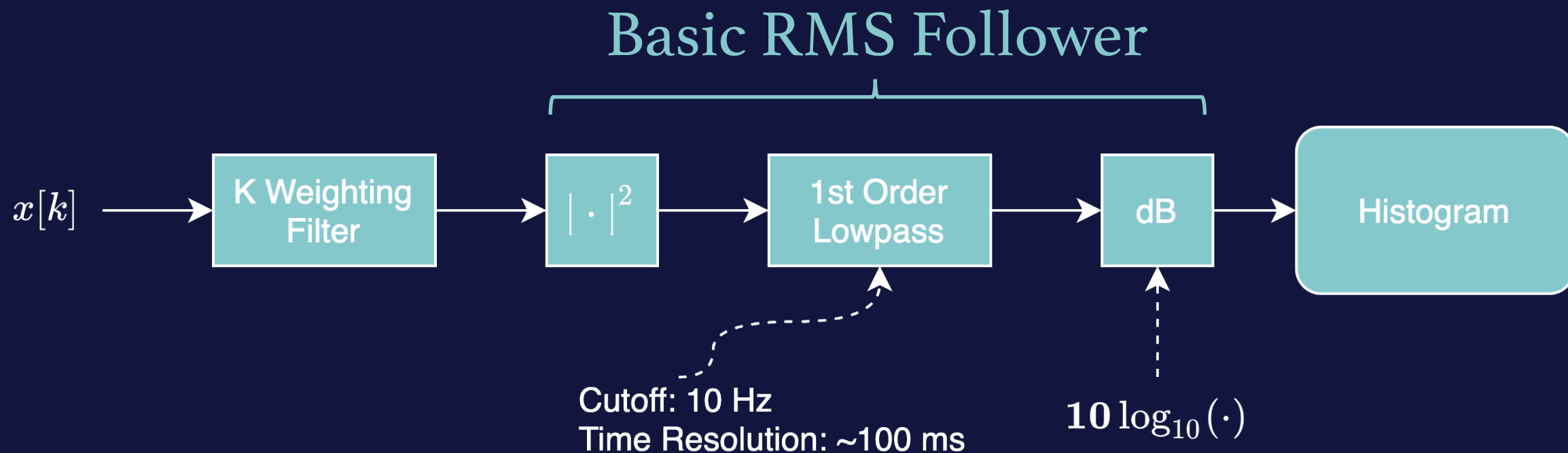
So Much Lost Information!



Histograms and Grading



The Dynamic Distribution



Music Examples Used

Johann Strauss II – Overture to Die Fledermaus
Vienna Symphonic Orchestra & Herbert von Karajan
New Year's Concert 1987

Give It Up
Talk Talk
The Colour of Spring (1986)

Bridge Burning
Foo Fighters
Wasting Light (2011)

Audio Samples Available At:
science-of-sound.net/adc21

Watermelon Man
Herbie Hancock
Head Hunters (1973)

Red Rain
Peter Gabriel
So (1986)

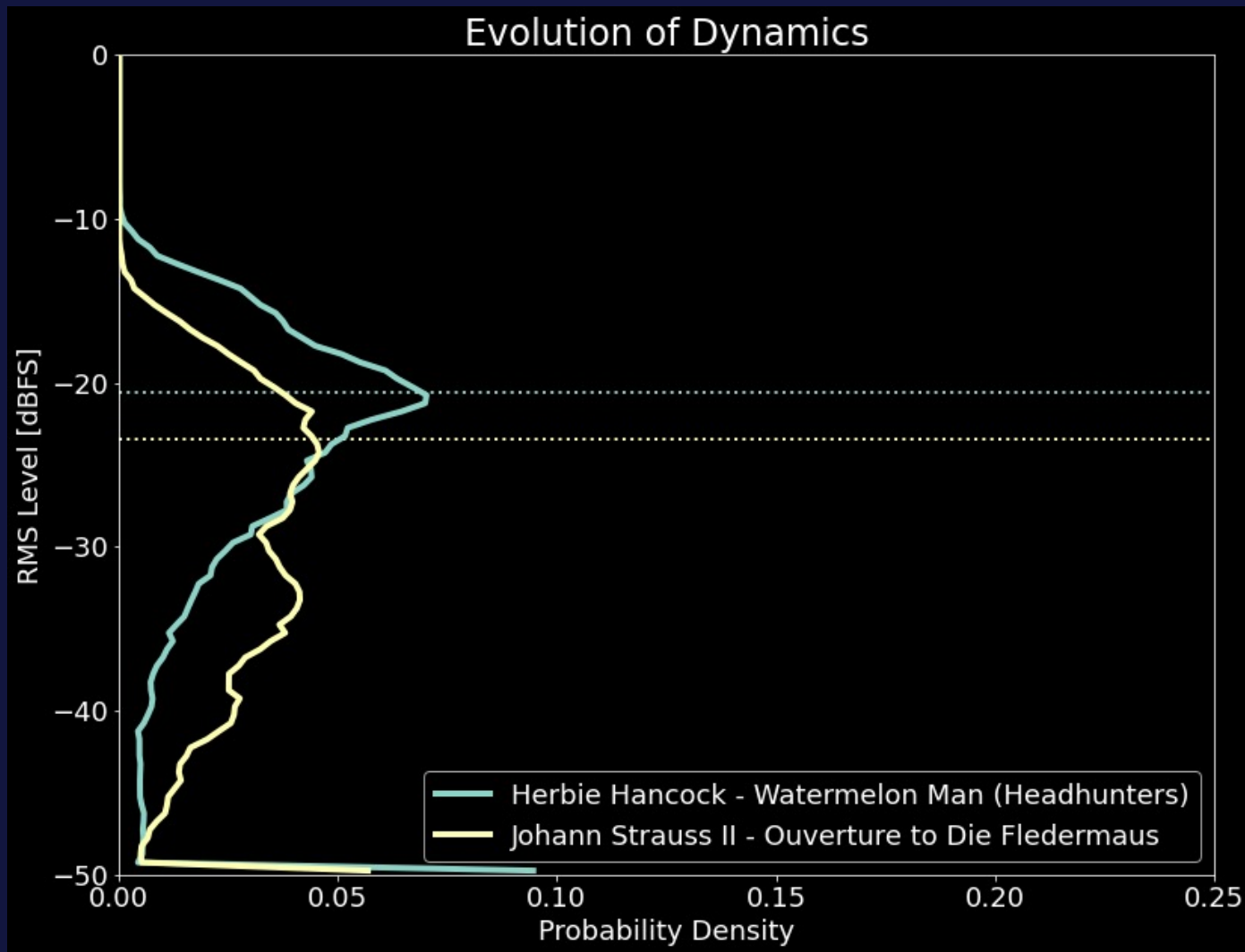
Open Eye Signal
Jon Hopkins
Immunity (2013)

Individual Tracks From:
Too Young To Die
Jamiroquai
Emergency On Planet Earth (1993)

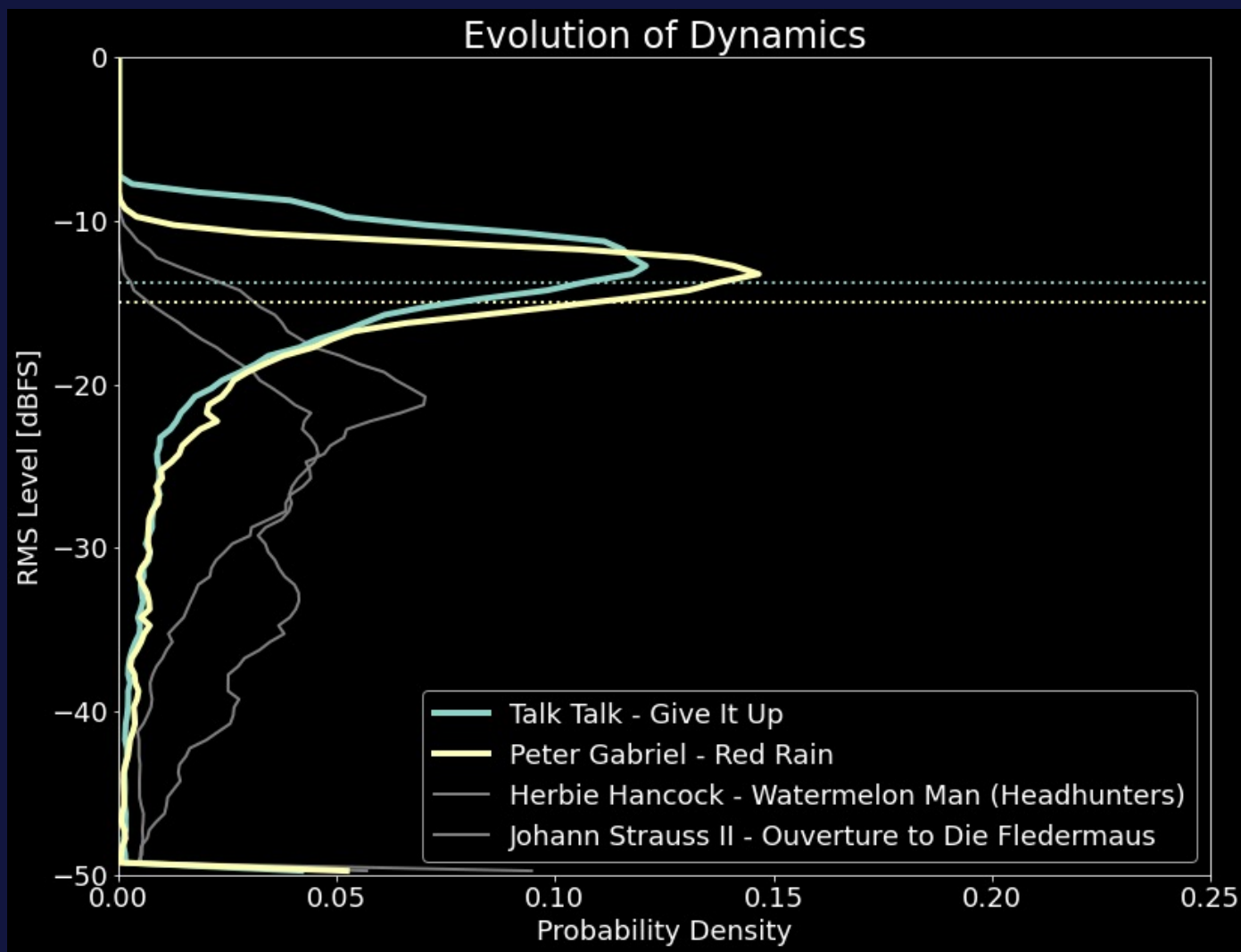
Long Term Dynamics: Music Mixes

A BRIEF HISTORY OF DYNAMICS

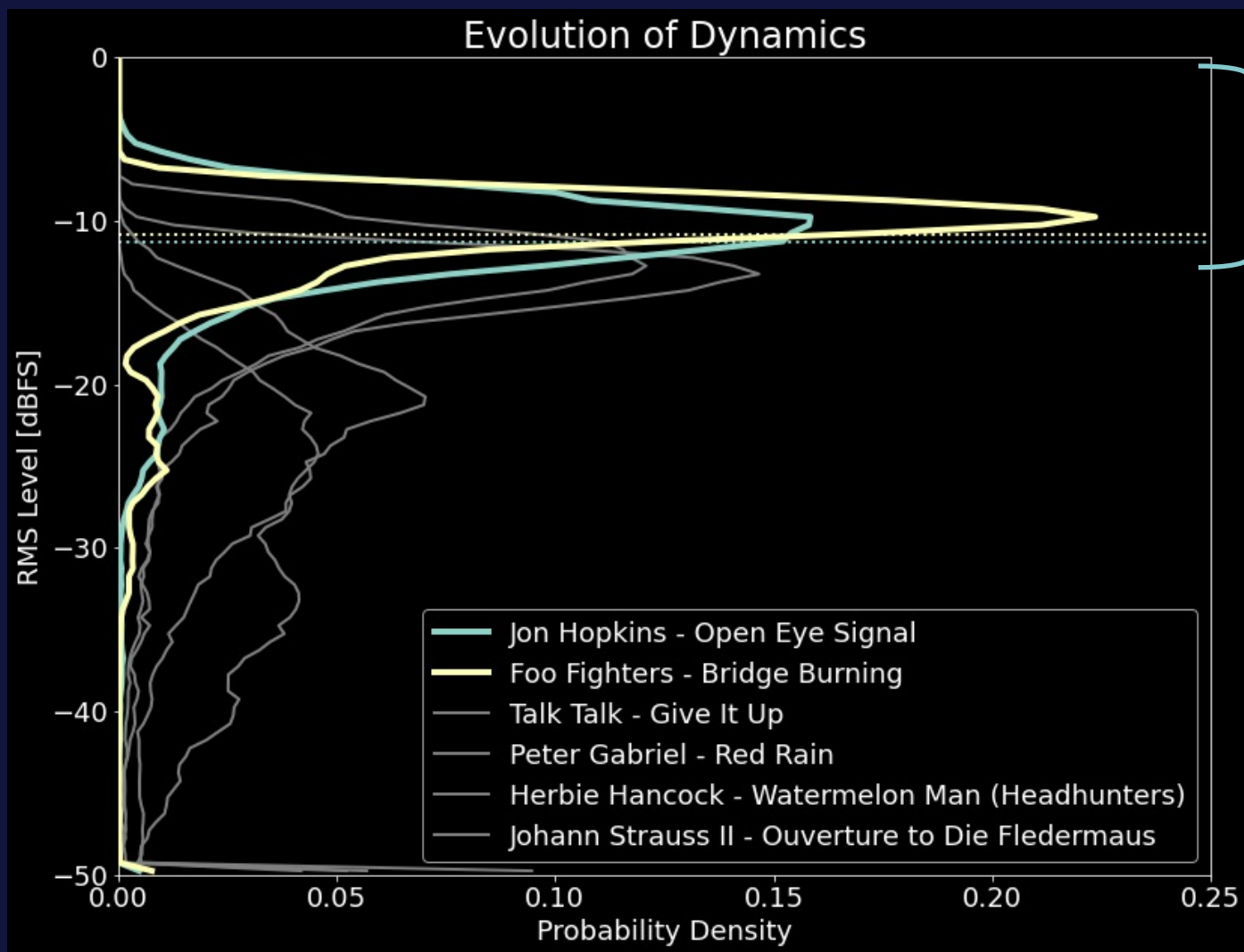
Evolution of Long Term Dynamics



Evolution of Long Term Dynamics



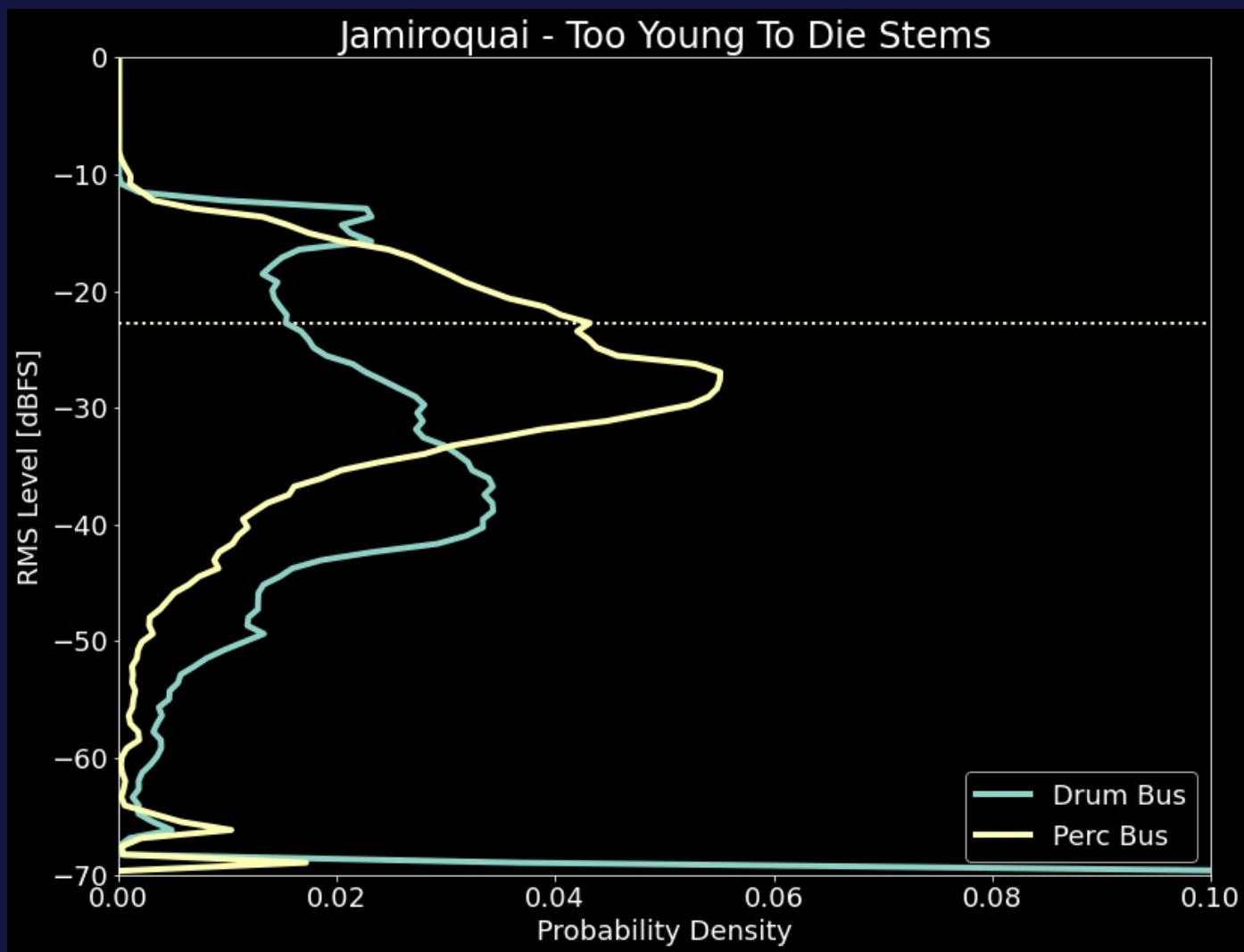
Evolution of Long Term Dynamics



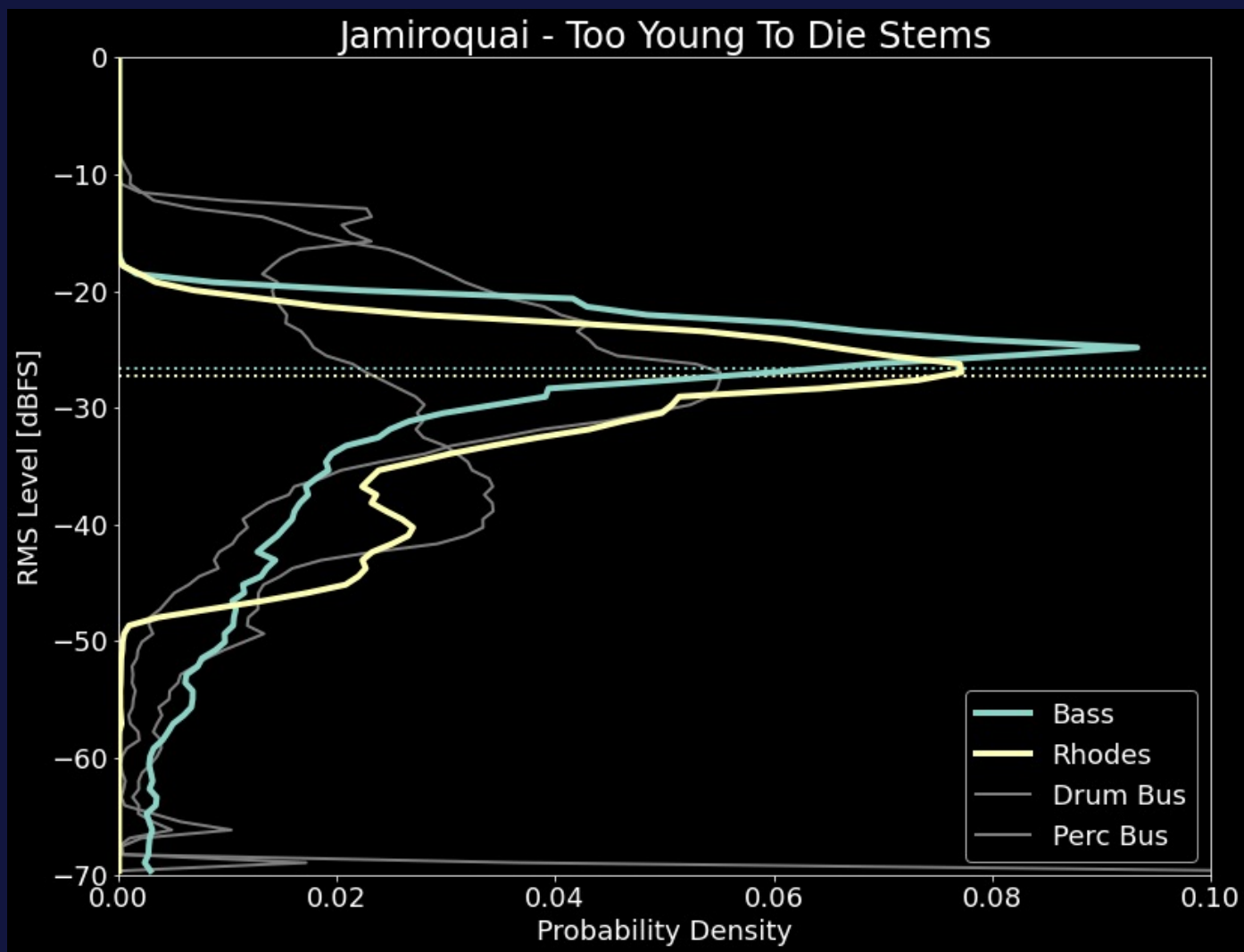
Long Term Dynamics: Individual Tracks

THE PARTS OF THE SUM

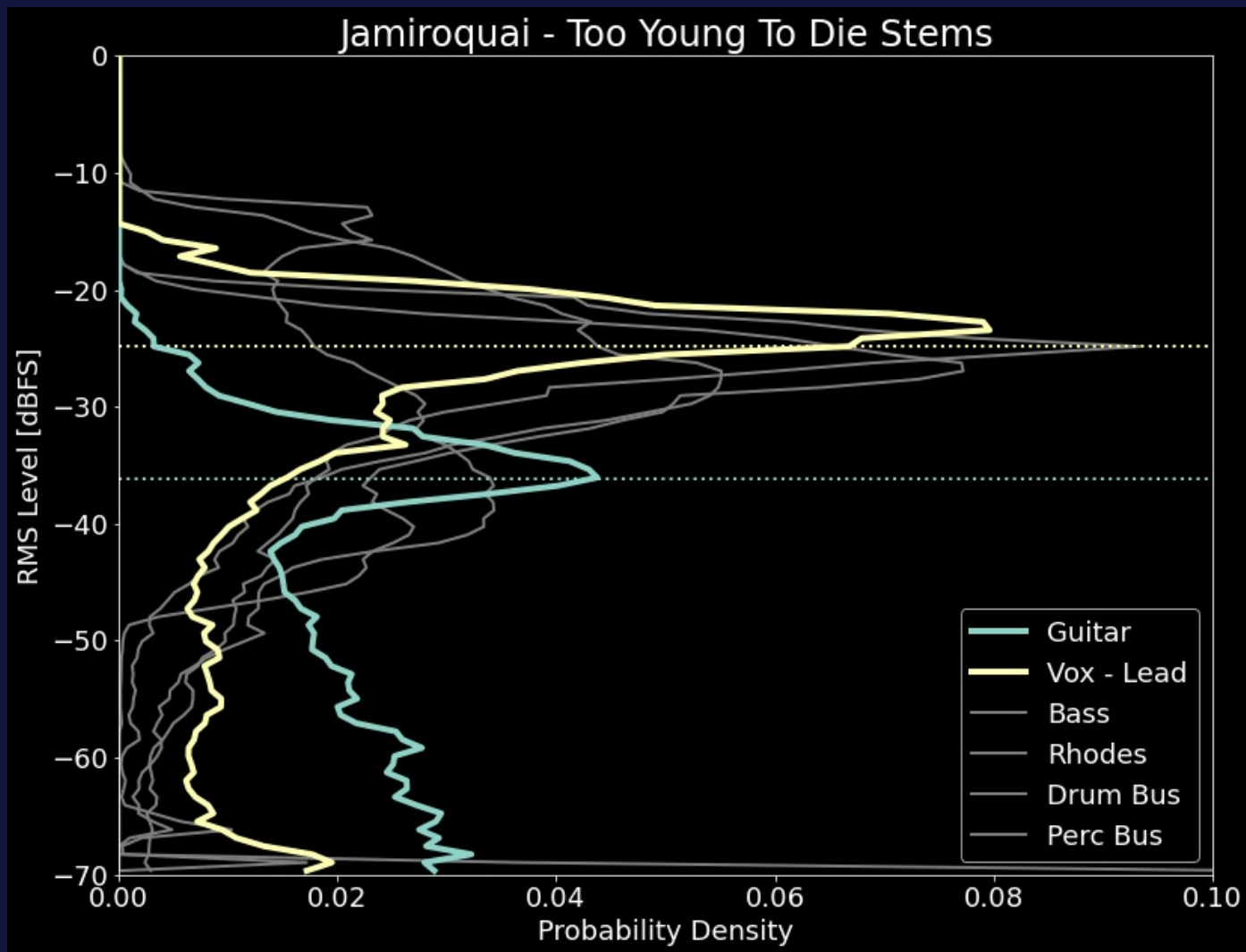
Individual Instrument Dynamics



Individual Instrument Dynamics



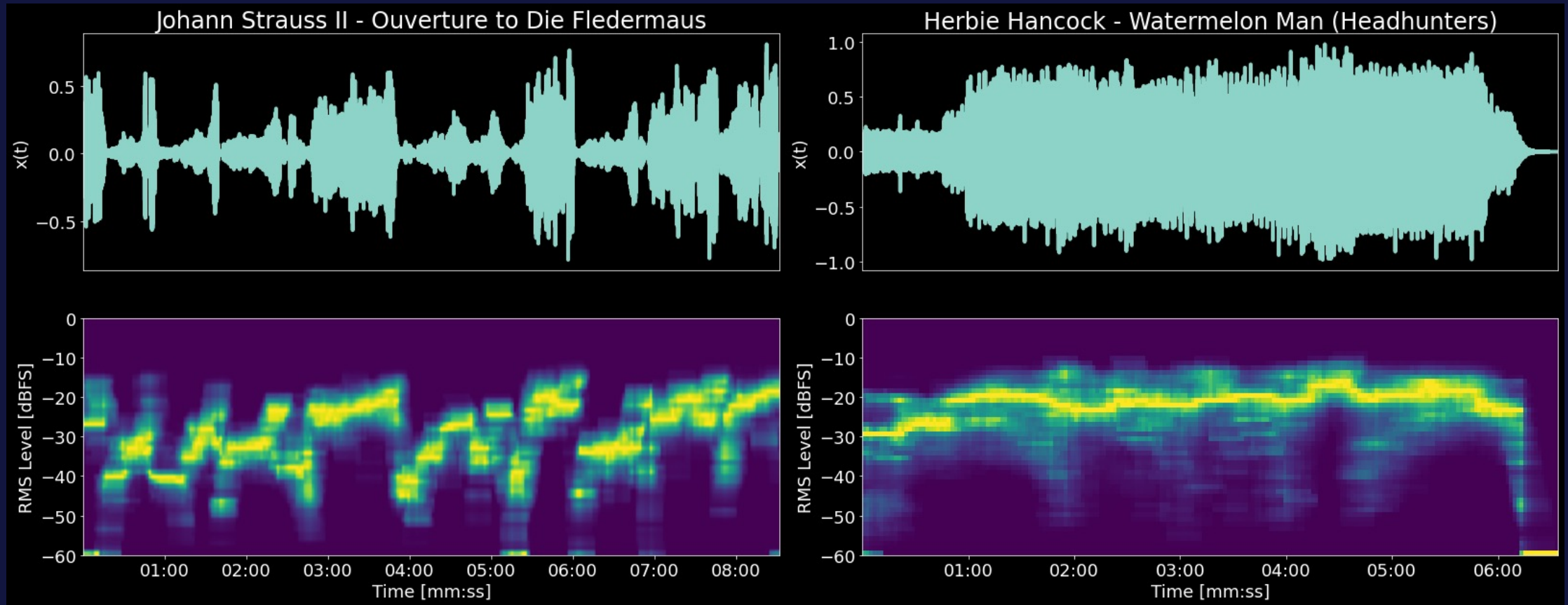
Individual Instrument Dynamics



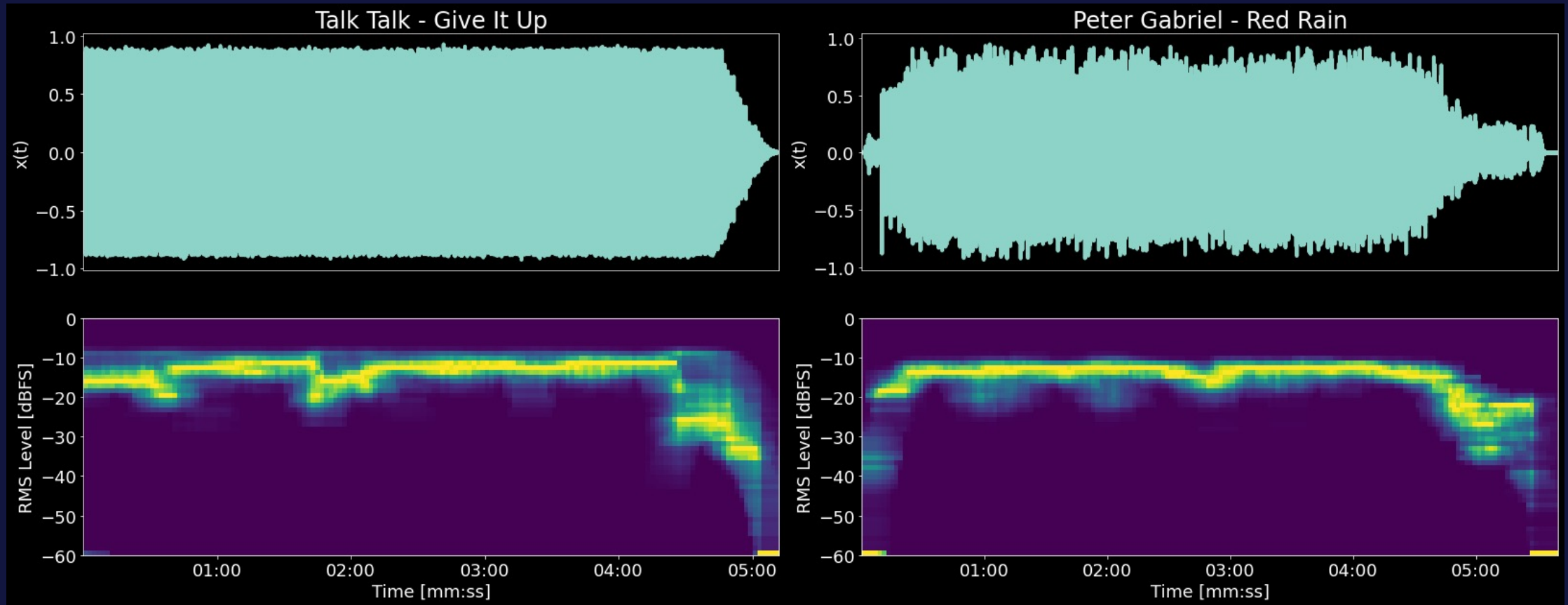
Short Term Dynamics: Music Mixes

THE BIRD'S EYE VIEW

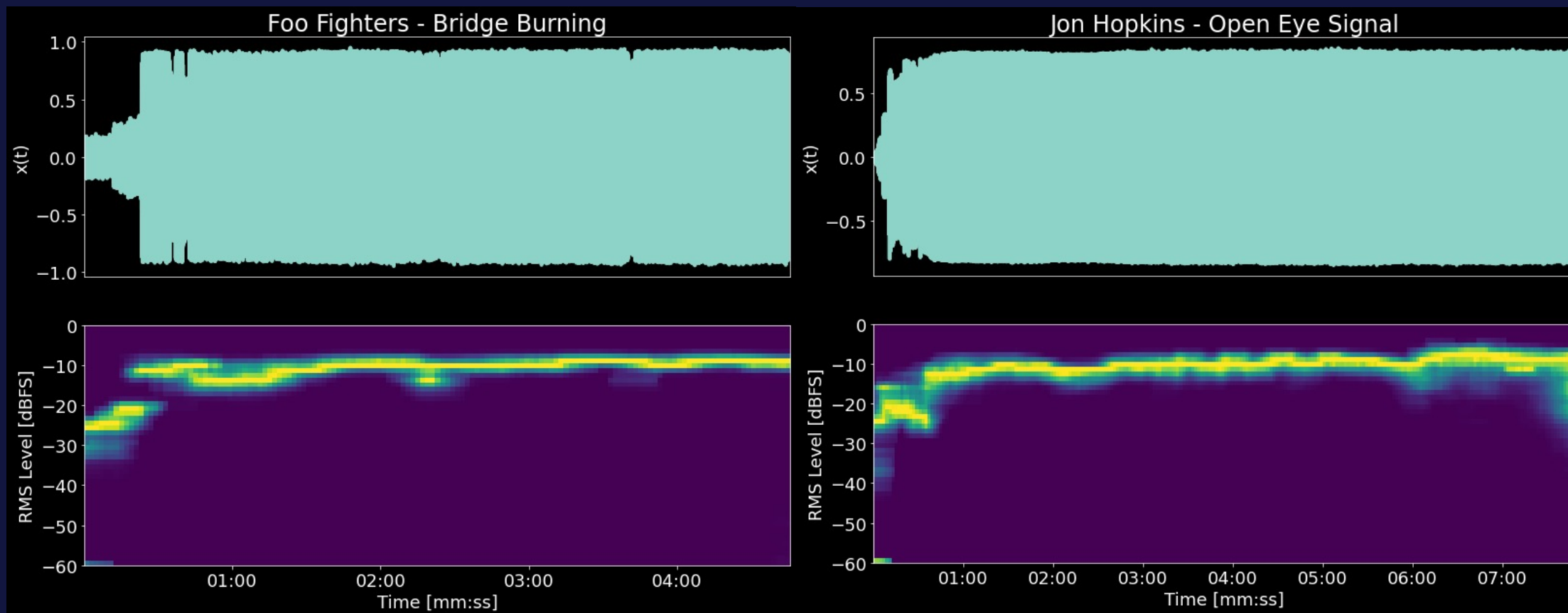
Short Term Dynamics



Short Term Dynamics



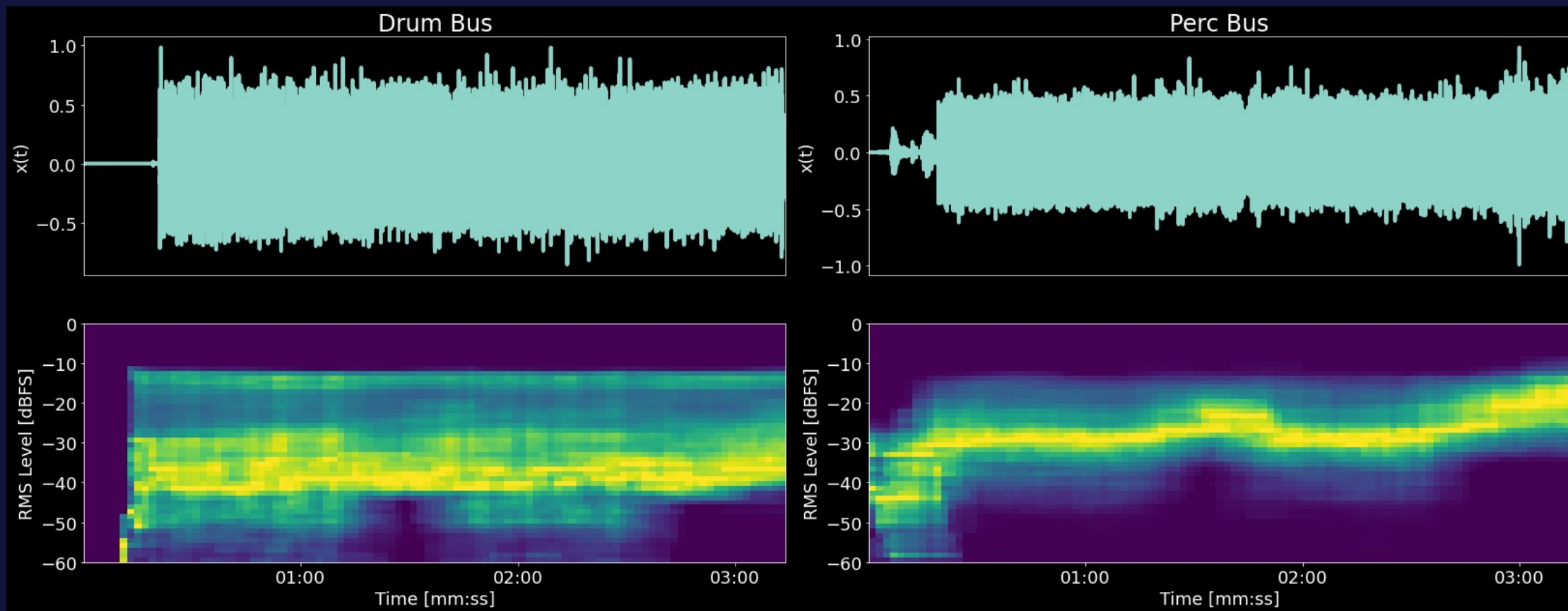
Short Term Dynamics



Short Term Dynamics: Individual Tracks

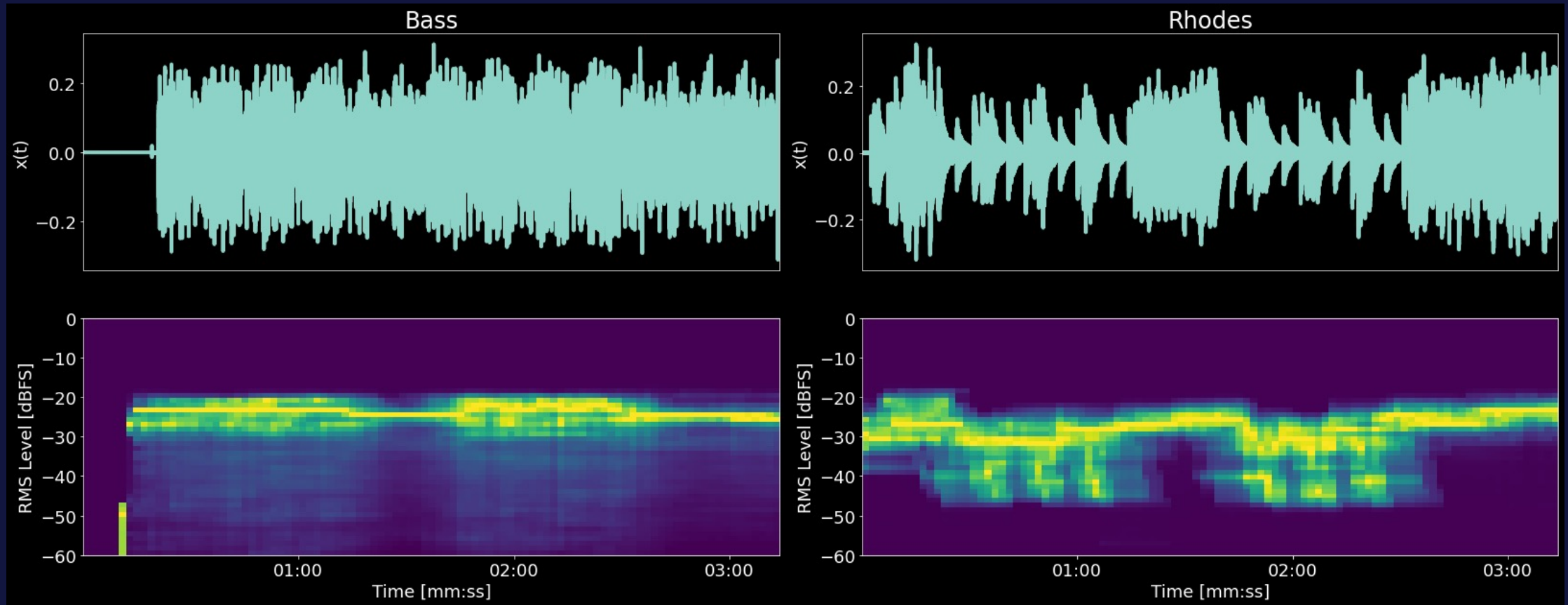
I'D LIKE A DAW TO STEAL THIS

Short Term Dynamics



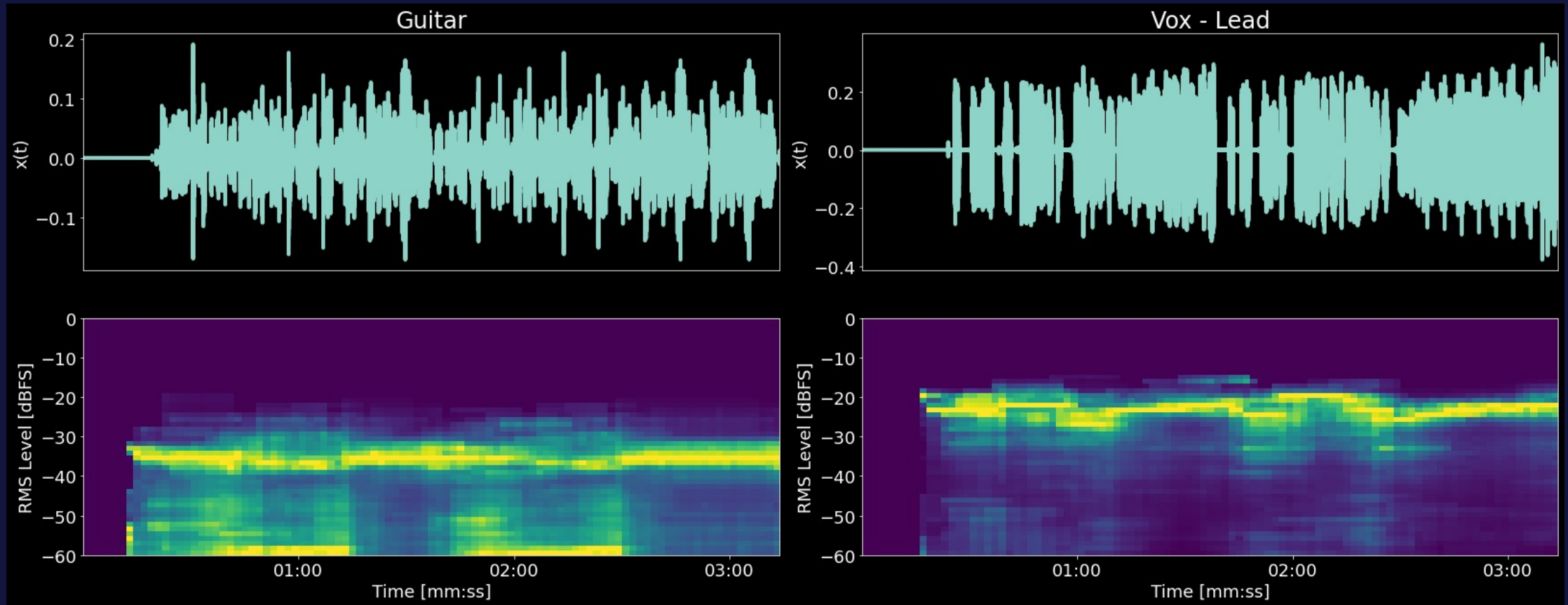
Individual Tracks From: Jamiroquai – Too Young To Die

Short Term Dynamics



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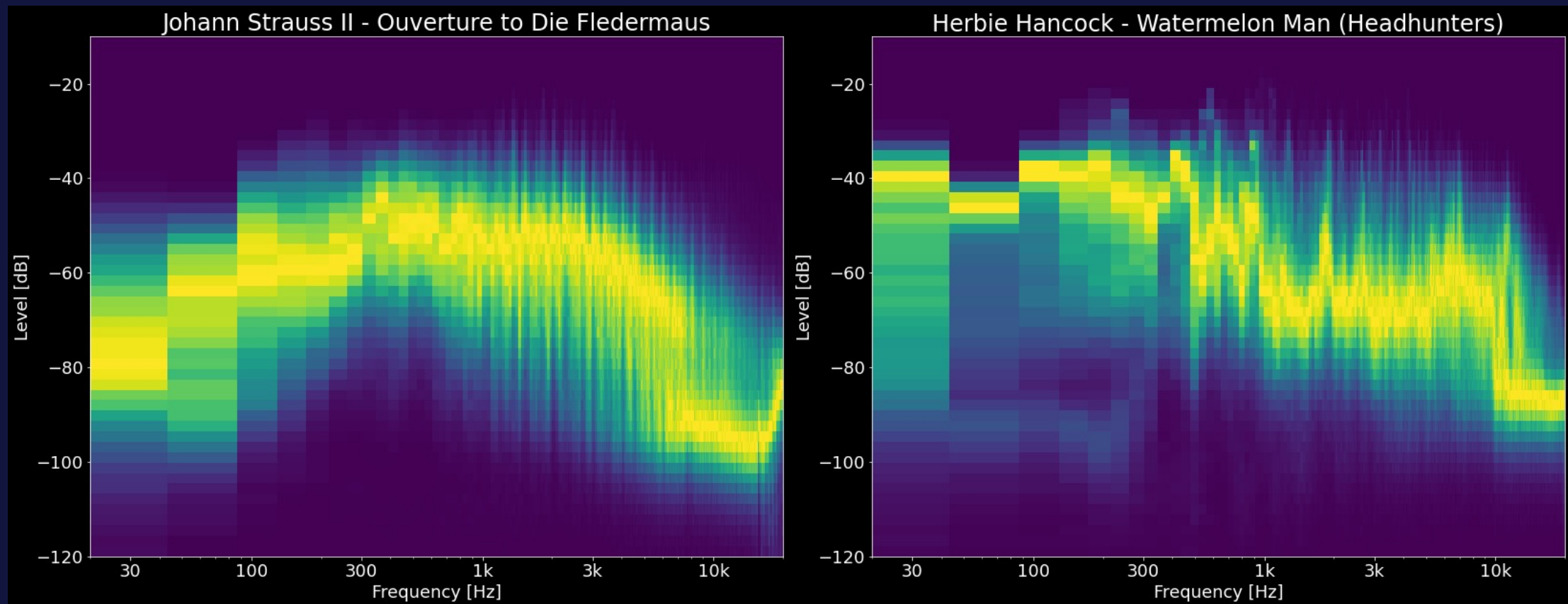


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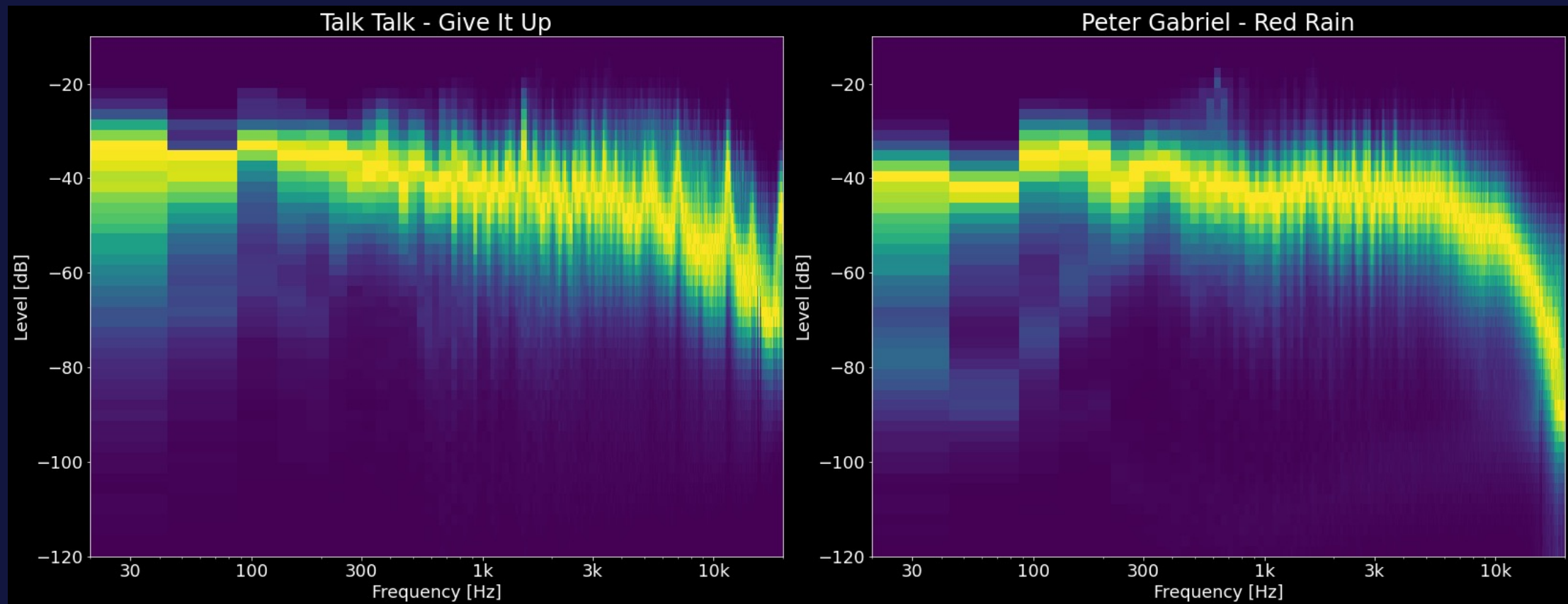
Spectral Dynamics: Music Mixes

A SPECTRUM ANALYZER ON STEROIDS

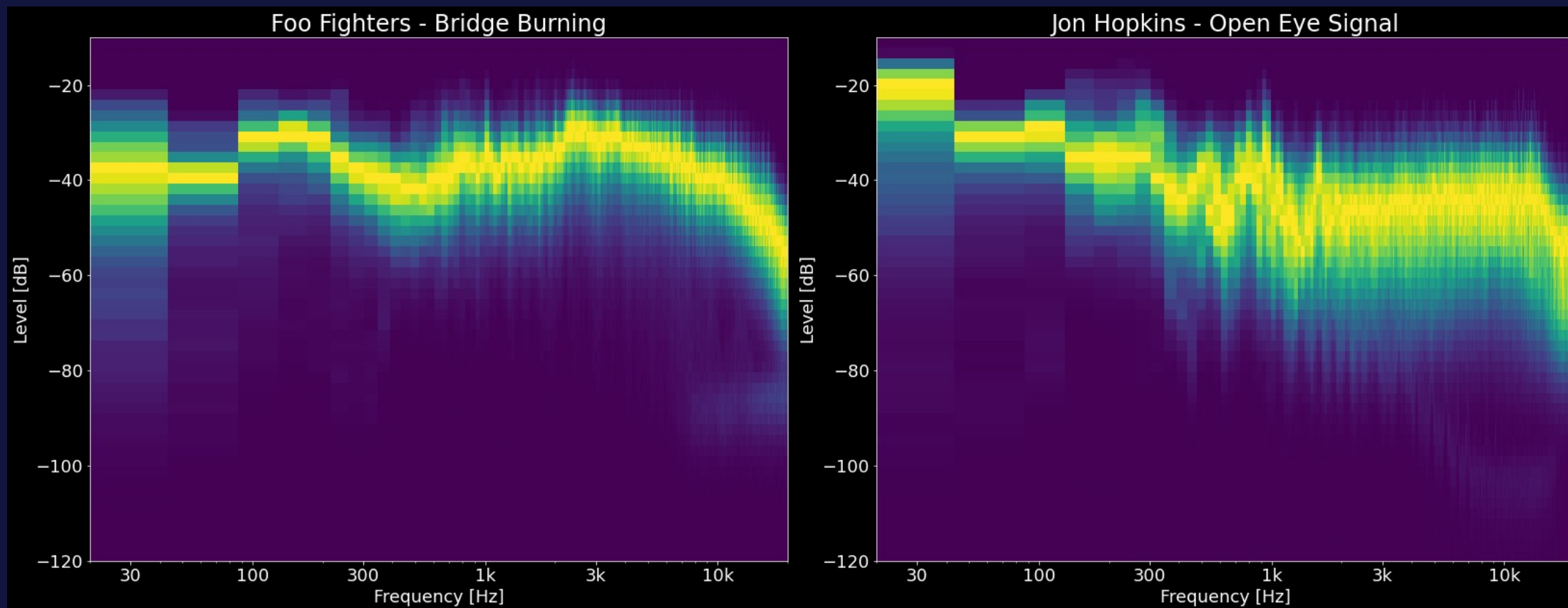
Spectral Dynamics: Music Mixes



Spectral Dynamics: Music Mixes



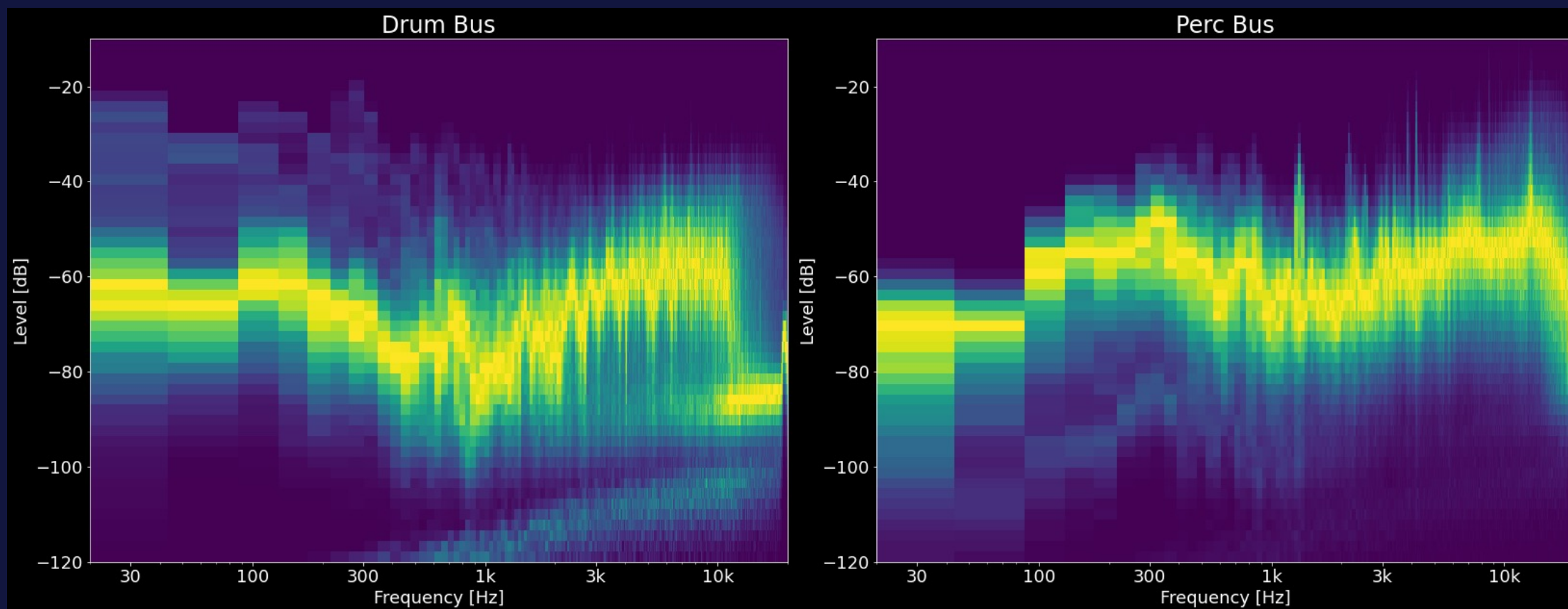
Spectral Dynamics: Music Mixes



Spectral Dynamics: Individual Tracks

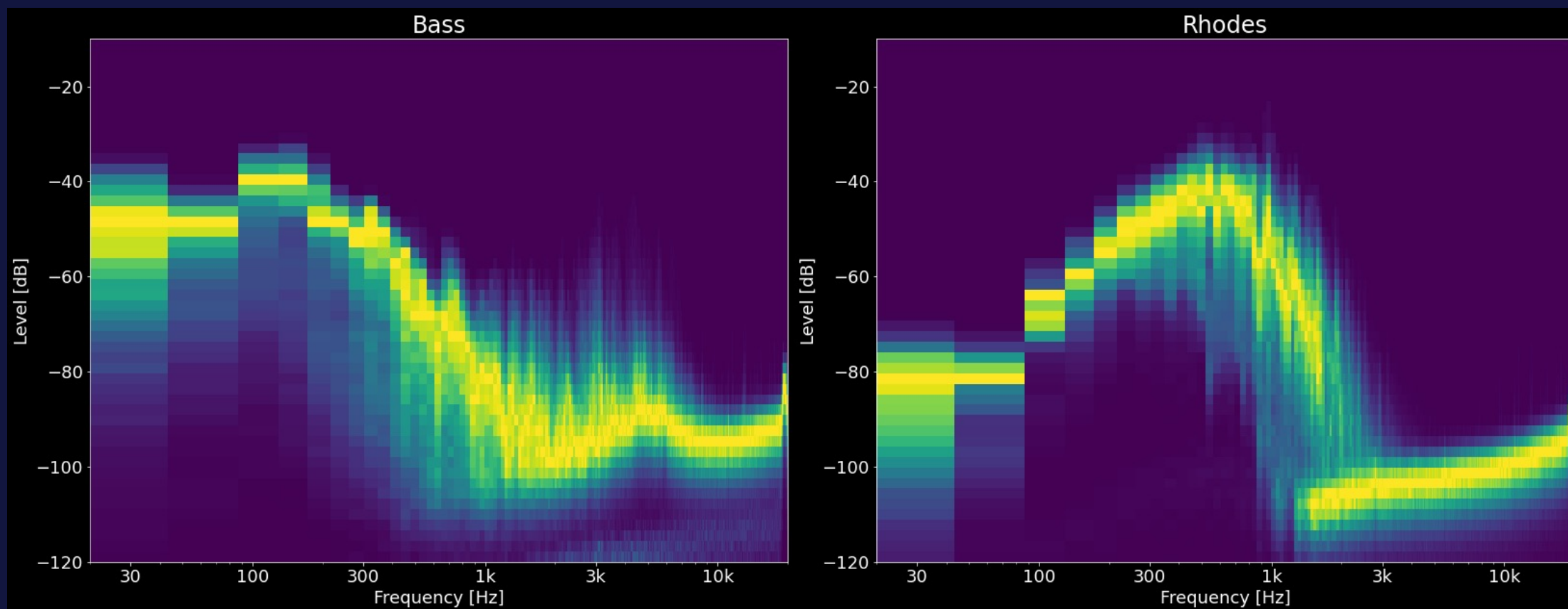
MAPPING OUT A MIX (IN 2D!)

Spectral Dynamics: Individual Tracks



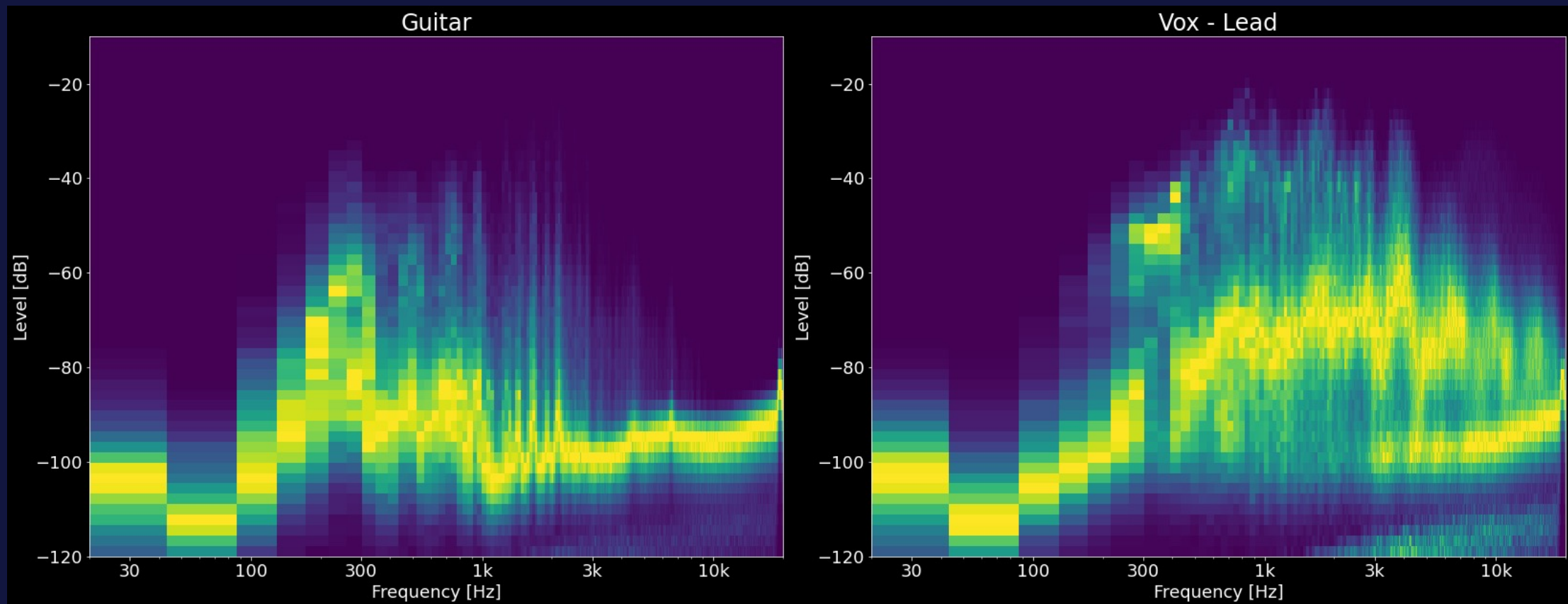
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Spectral Dynamics: Individual Tracks



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Spectral Dynamics: Individual Tracks

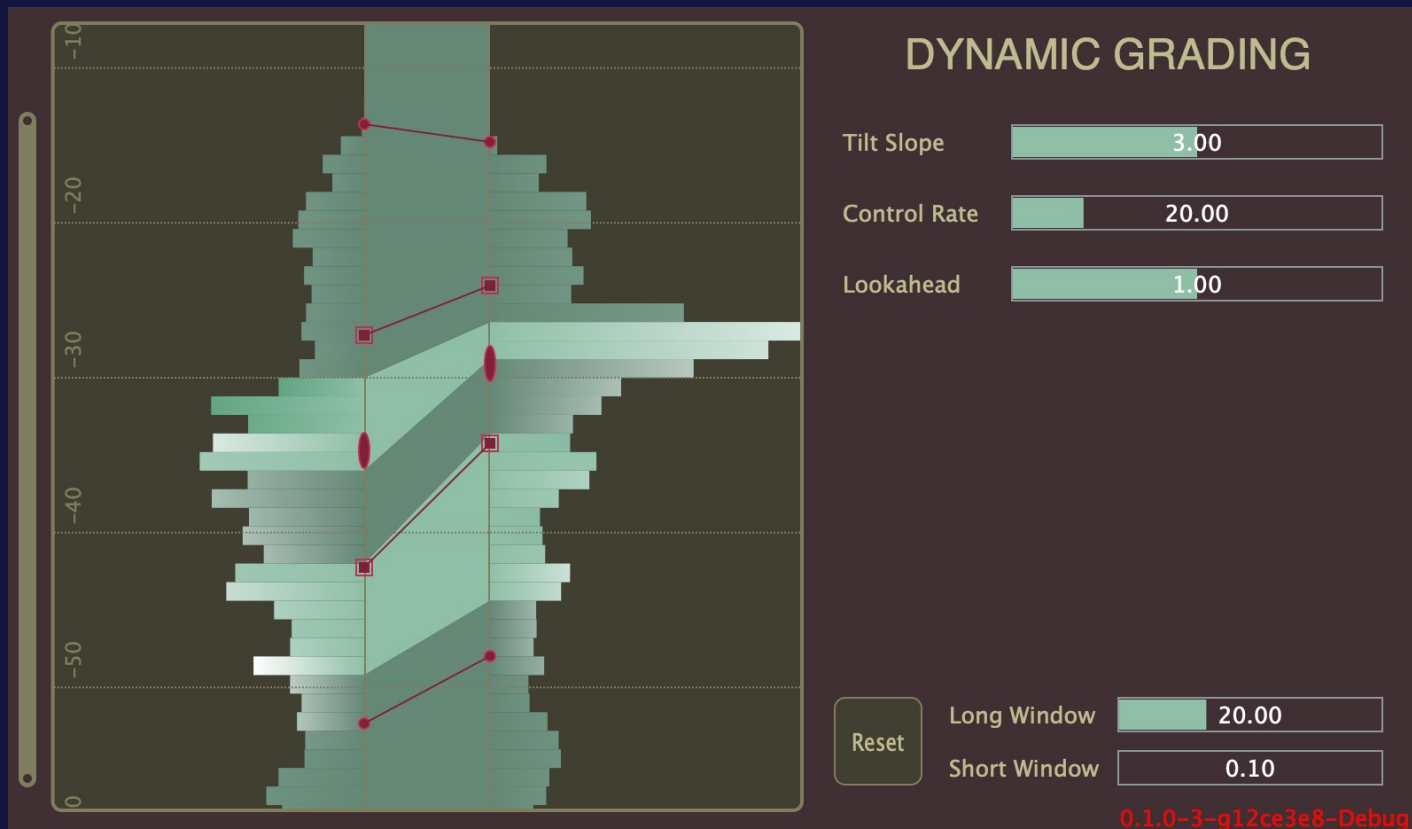


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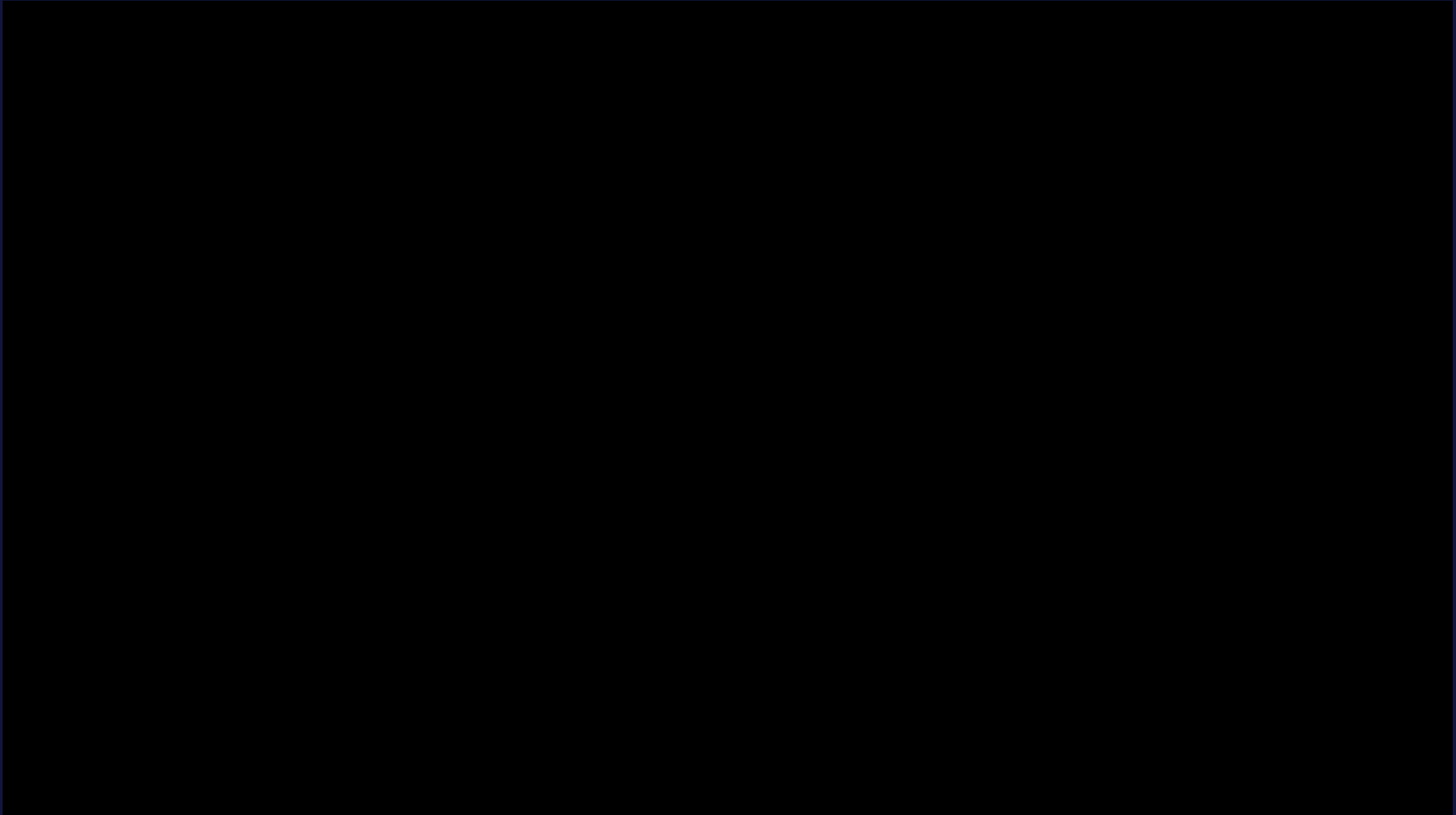
The Outlook

A PRACTICAL APPLICATION

Prototype: Dynamic Grading



“What would dynamic processing look like today if nobody had ever invented the compressor?”



Conclusion

If you see an average and it's about something interesting, take a look at the distribution behind it.

Thank You!



<https://science-of-sound.net>



@hugoderwolf