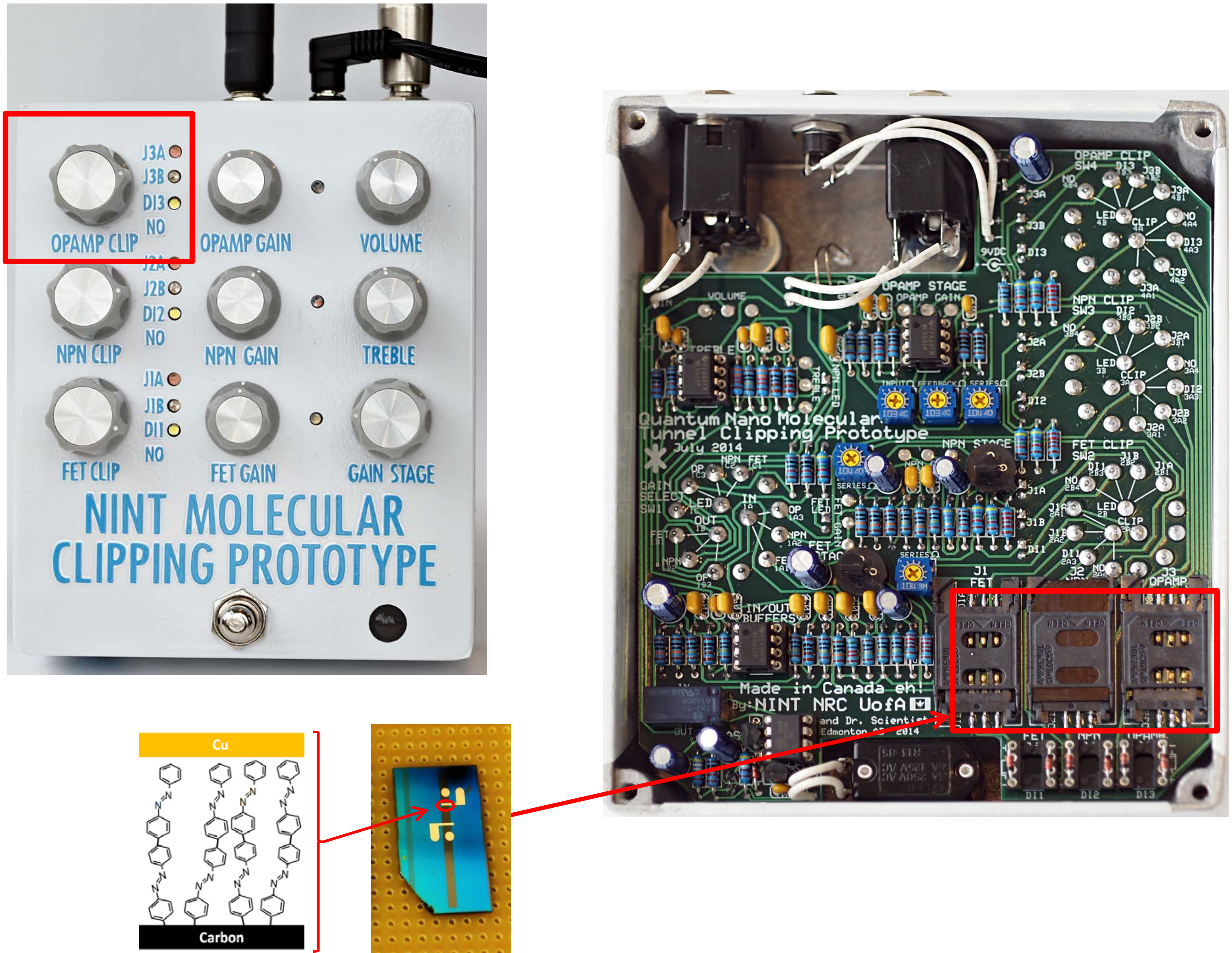
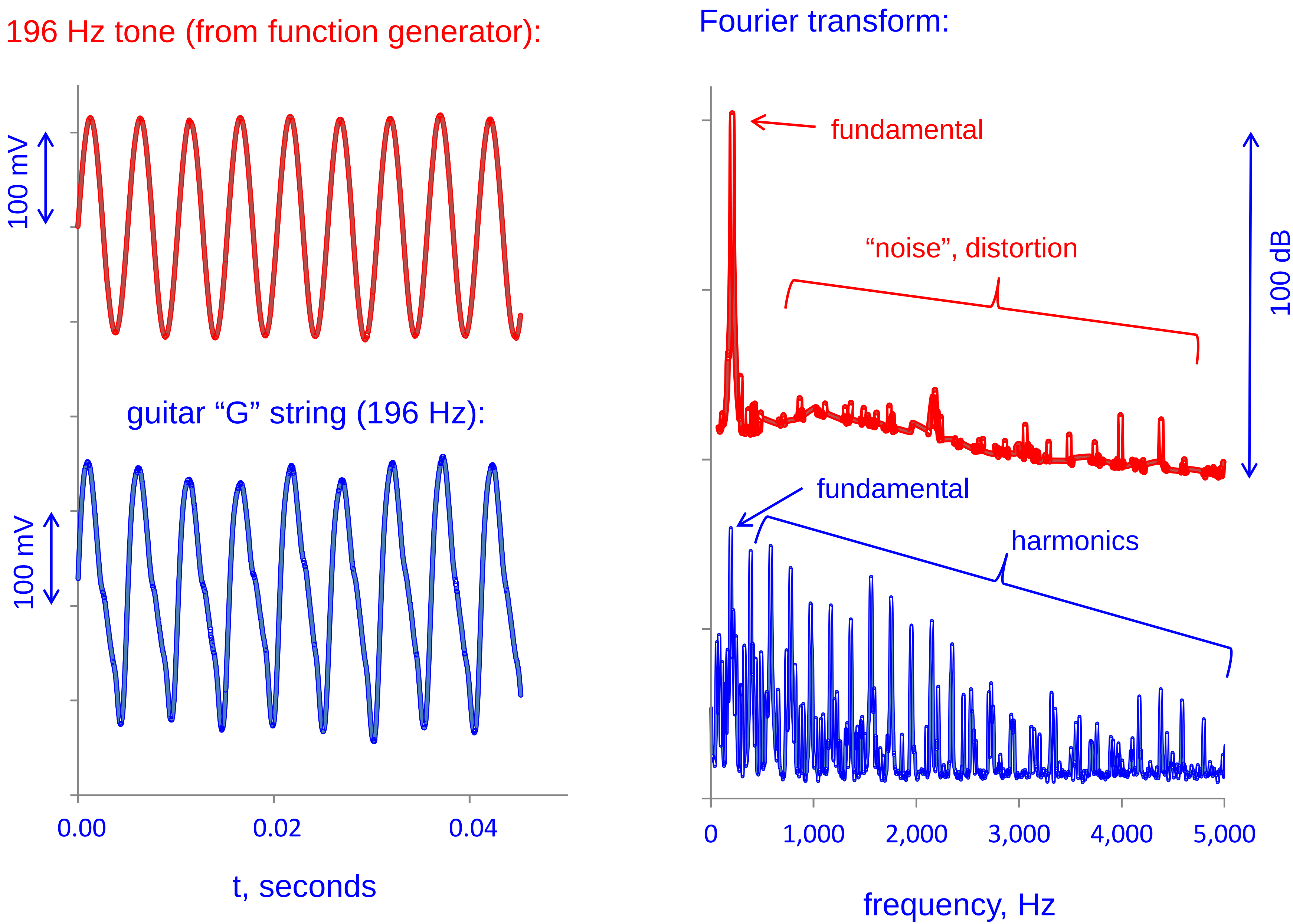
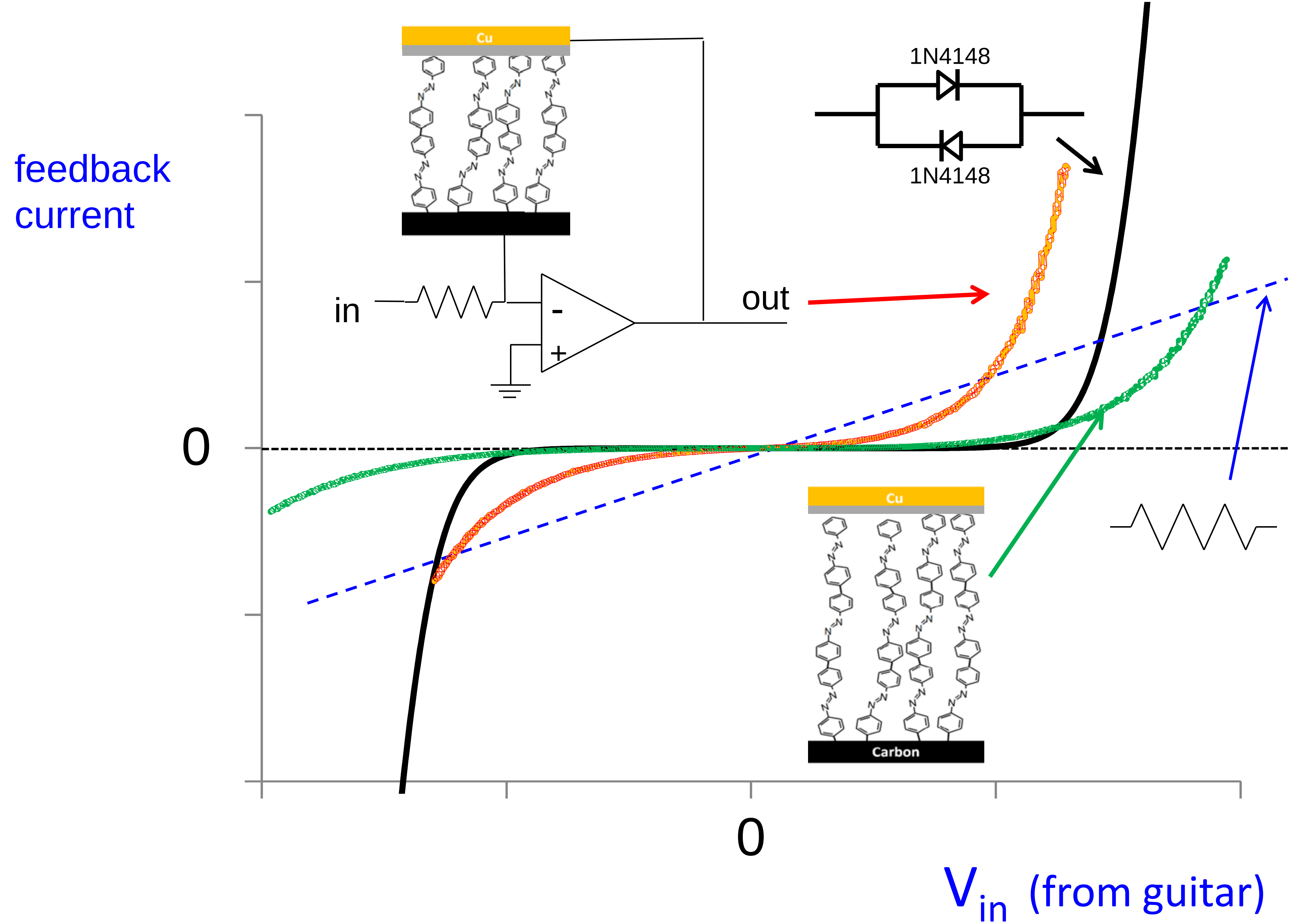
Molecular junction overdrive prototype built August, 2014

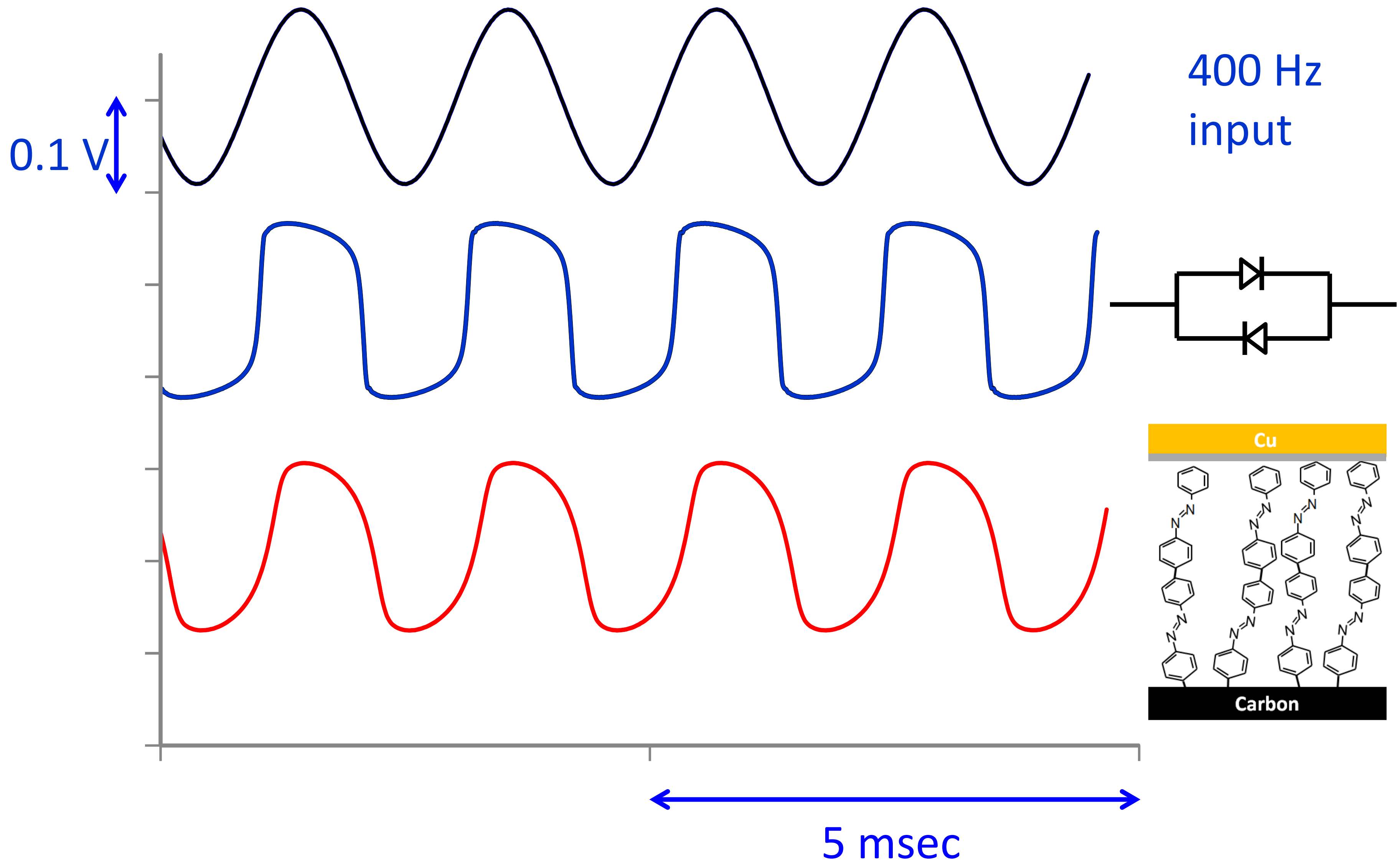
Builder: Ryan Clarke, Dr. Scientists Sounds


J3A
J3B
DI3
NO
OPAMP CLIP
OPAMP GAIN
VOLUME
J2A
J2B
DI2
NO
NPN CLIP
NPN GAIN
TREBLE
J1A
J1B
DI1
NO
FET CLIP
FET GAIN
GAIN STAGE
NINT MOLECULAR
CLIPPING PROTOTYPE
Quantum Nano Molecular
Tunnel Clipping Prototype
July 2014
OPAMP STAGE
NPN STAGE
IN/OUT BUFFERS
Made in Canada eh!
By: NINT NRC UofA
Cu
Carbon

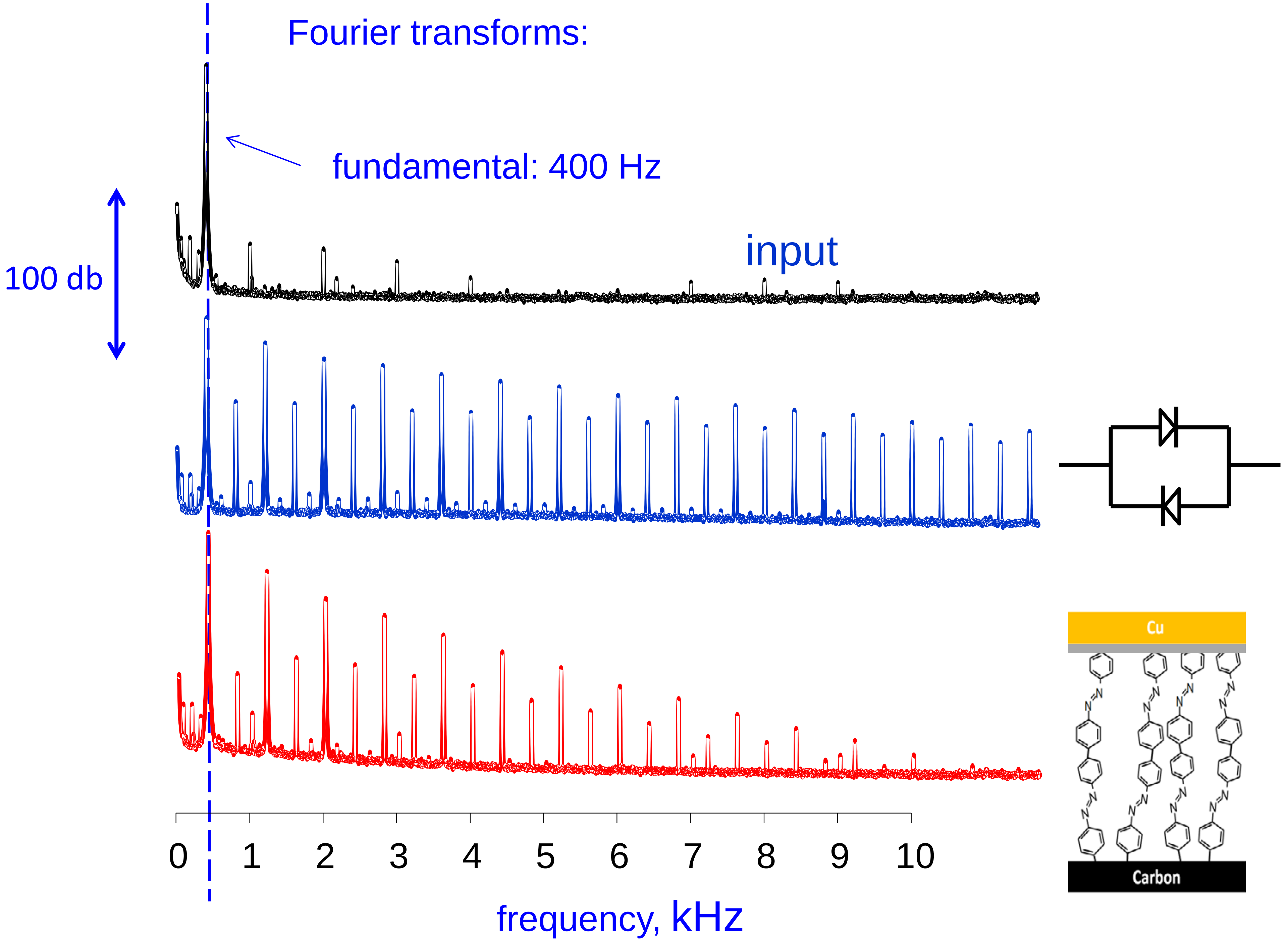

196 Hz tone (from function generator):
100 mV
guitar “G” string (196 Hz):
100 mV
0.00
0.02
0.04
t, seconds
Fourier transform:
fundamental
“noise”, distortion
100 dB
fundamental
harmonics
0
1,000
2,000
3,000
4,000
5,000
frequency, Hz

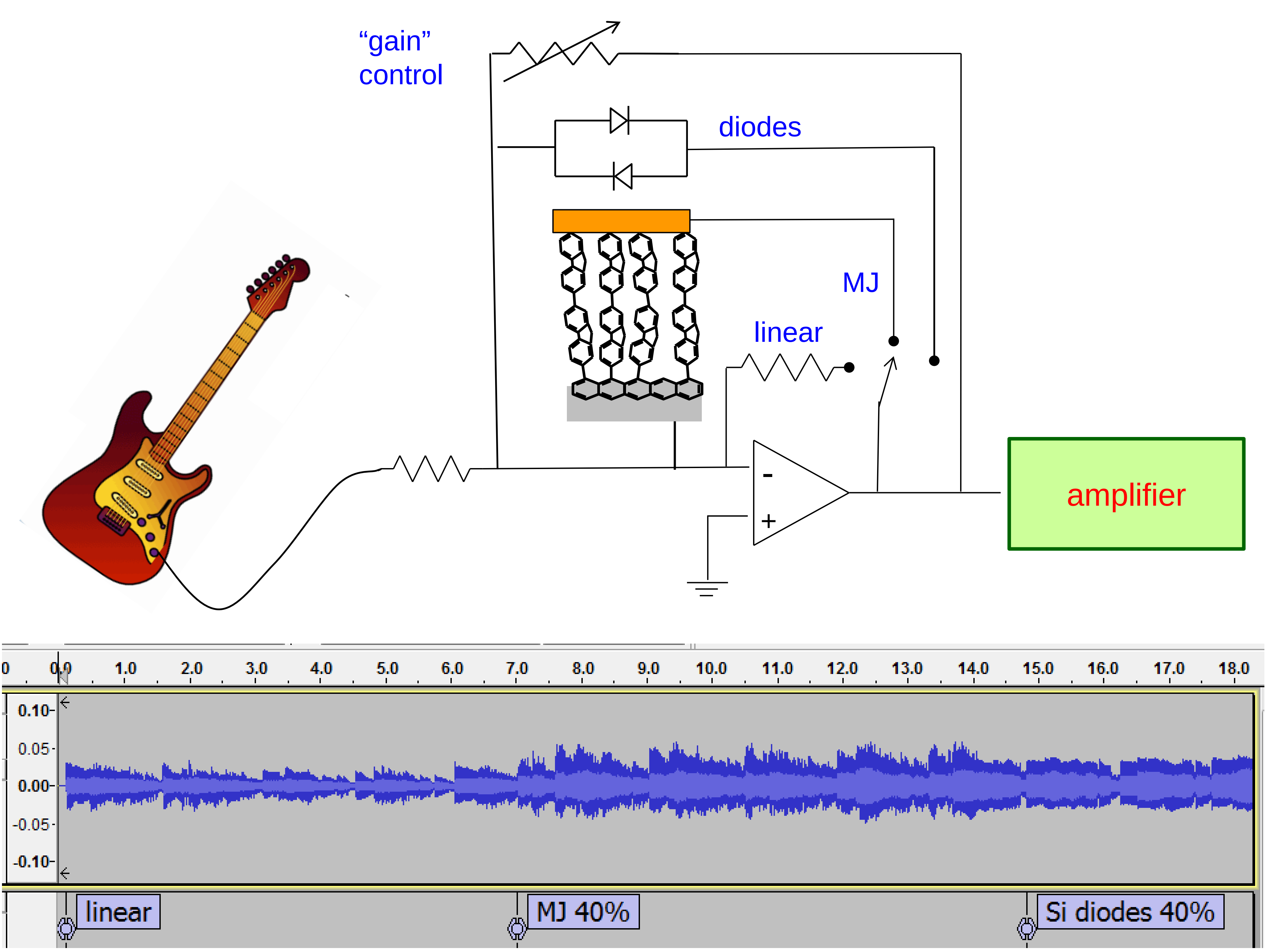


feedback
current
Cu
in
-
+
out
1N4148
1N4148
0
Cu
Carbon
0
V_{in} (from guitar)

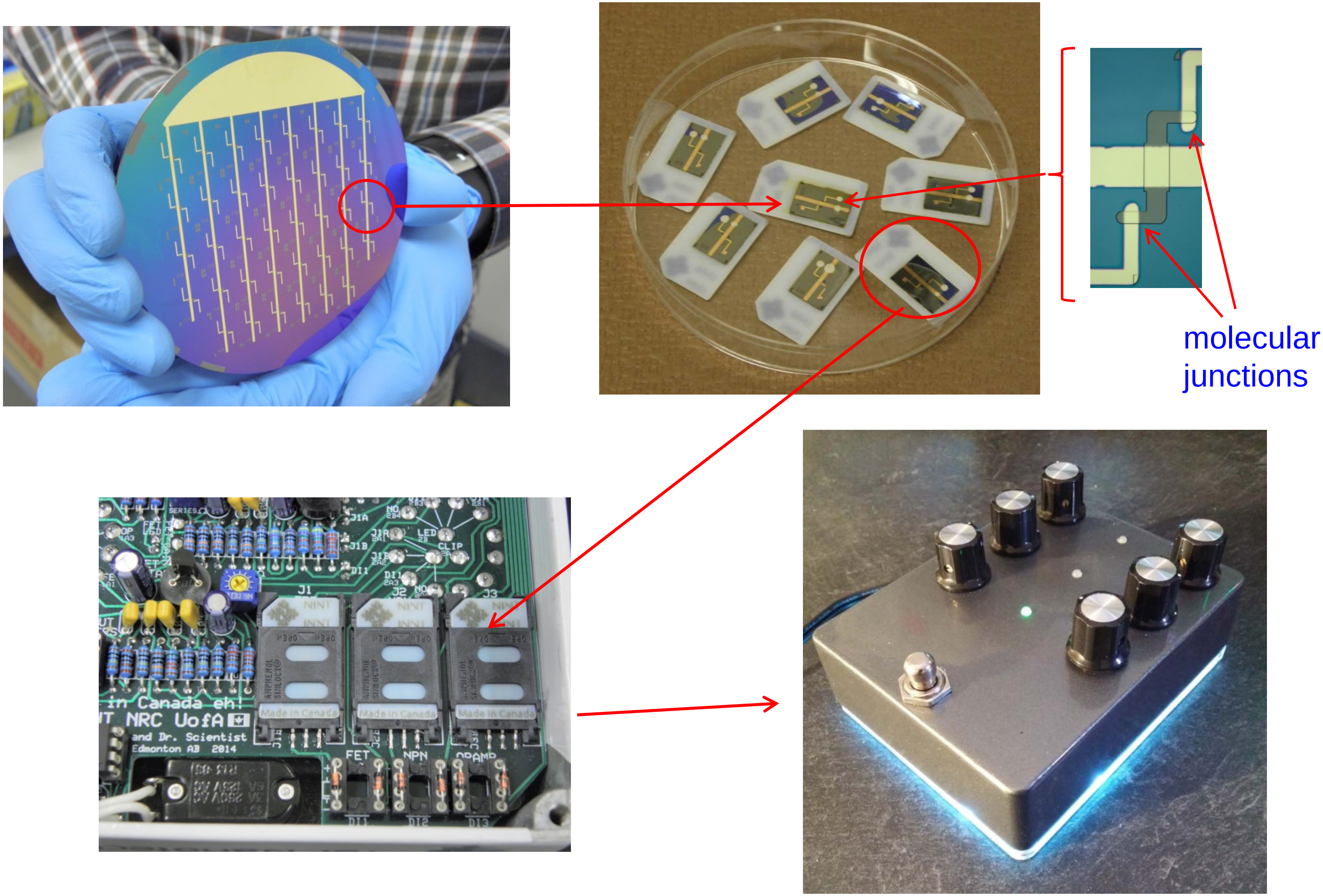


400 Hz
input
0.1 V
5 msec
Cu
Carbon


Fourier transforms:
fundamental: 400 Hz
input
100 db
0
1
2
3
4
5
6
7
8
9
10
frequency, kHz
Cu
Carbon


"gain" control
diodes
MJ
linear
-
+
amplifier
0 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0
0.10
0.05
0.00
-0.05
-0.10
linear
MJ 40%
Si diodes 40%

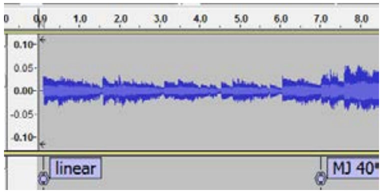
Coming soon…



“Heisenberg Nanodrive”
(www.drscientist.ca)

Further reading:

Audio clip of guitar and distortion circuit of previous slide:



One-minute video of diode and molecular junction:

Vendor for “Heisenberg Nanodrive” based on molecular junctions

YouTube videos with many details:

19 minute video on principle of operation:

38 minute video with detailed comparisons: