

## Live Sampling + DIY Mic Workshop

Live sampling is cool because you can play fresh sounds every time. But as you may know — if you have tried being a DJ or recording on your own — it is not the easiest thing in the world to record samples from acoustic instruments or objects and simultaneously do something musical with the captured sounds.

Scramble no more! Come to this workshop and try for yourself! Using Free/Open software (**Puredata**) for the live sampling/playback process — which used to take hours or days in a studio — can now be done instantaneously in any location you can imagine. This ready-to-go free software setup (Pd+"Slice//Jockey") will take care of everything that can be automated; as a musician you can focus on artistic aspects — playing acoustic sources and directing the musical flow. Join us and experiment with your own mix approach!

In the workshop, we will use Pure Data free software routines to take care of all the sound capture and playback automatically. In addition — at the beginning of the workshop — we will construct a high quality DIY microphone, a microphone which meets the demanding requirements of live sampling:

- unidirectional response (to alleviate feedback troubles)
- electro-magnetic shielding (to suppress electronic hum)
- flexible suspension of the capsule (to reduce handling-noises)
- pop filter (to enable vocal close-miking and outdoor use)

The DIY mics we will build in this workshop are designed to feed into your computer's onboard soundcard via 1/8 inch jack mic-input. Or the mic can feed into a simple external (USB) soundcard such as iMic. At the end of the workshop, you will have a simple/easy/powerful live sampling kit — perfect to take on the road with your laptop.

### *Notes for PdWeekend Local Planning*

We need to prepare stuff in such a way that any mishap like a suitcase lost at the airport won't prevent us from running the workshop. All software (patches, external class code and executables) will be available online before the Pd weekend so the stuff can be copied at will. I'll keep you informed about uploads. Materials for the DIY mic should be readily available so they can be acquired by CrashSpace with minimal budget and effort, and the construction should not require specialized tools and / or exclusive skills. I still have to figure out what is the best model for our purpose. So far, I've built two different models, see pictures below.



*Interior of a model I'm now using in practice with good result. The capsule position is recessed, for protection and also to warrant a minimal distance from sound source and airflow. The steel tube makes a rugged enclosure, and is connected with the mic's ground terminal to acts as electro-magnetic shield.*



*The mic housing is to be completely covered with imitation fur. The fur takes care of popping vocals and handling noises. I fear that it is unlikely to find steel tube with holes and all, like I bought it years ago. A more elaborate alternative would be 1 inch copper tube from the home depot, and drill a few holes in the upper end ourselves. Or plastic tube with some metal shielding added.*



*Tea strainer mic. I like this model because the simple tea strainer provides so much functionality. It holds the capsule suspension and provides a first barrier for wind noises. Connected to the capsule's ground terminal, it provides electro-magnetic shielding.*



*Interior of the tea strainer mic. The original pin holding the two sides of the tea strainer together was drilled out and replaced by a nut and bolt. This was needed to attach a solder lip because steel can not be soldered. This model needs an imitation fur wind cover just like any other model. It does not reduce handling noise so well as the steel tube model, but there may be ways to improve. Also, it is more fragile than the steel tube model.*



*Complete live sampling set with the kitten mic ready to awake and catch a sound.*

My suggestion would be to proceed preparing this workshop, even when the Panasonic WM-55A103 capsule is not available and should be replaced with an alternative capsule. Remember, the qualities of any electret capsule can be greatly improved with decent housing, so it is always useful to discuss this matter in the context of live sampling (and field recording). I'll provide a detailed list of additional materials and required tools soon as we decide on a definitive mic enclosure model. Let me know if you have suggestions or comments.

*From Katja, Sep 17*

Today I did a copper tube mic. It works fine, and looks good (see image below). It's almost a pity they must be wrapped in a wind shield.

The tube I used was 22 mm outside, 20 mm inside diameter. In USA this is not exactly available but I found this on homedepot:

[Home Depot Copper tube](#)

Nominal size is 3/4 inch but the real size is slightly bigger (fortunately for us). Copper is not too hard to cut and drill, it does not need cooling fluids like steel does. It is a relatively expensive material, but for a mic we need only 11 cm, that means less than one dollar per mic if I've interpreted homedepot's info correctly.



If we go for the copper tube mic (which would be my preference), the workshop would be a real \_work\_ shop because of all the hole drilling. Theron, do you think this is feasible within the context of CrashSpace? Amongst other things, we'd need drilling machines (possibly cordless), sharp drills in various sizes, and vices to hold the tubes.



---

Date: Wed, 18 Sep 2013 07:47:10

From: katja

Subject: Re: Panasonic capsules

More news on unidirectional electret capsules. I found this:

<http://www.jlielectronics.com/PDF/JLI-55A103-65A103-56A103.pdf>

Exactly the same specs as Panasonic's. There's also a slightly different model with better bass response:

<http://www.jlielectronics.com/PDF/JLI-55A-T.pdf>

JLI's website looks like Chinese wholesale, though their address is in US, and the domain registrant is also US based as I've checked. The mics come from Transound which is definitely Chinese:

<http://transound.gmc.globalmarket.com/>

---