Two more applications of the fireworks technique

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The fireworks technique, essentially due to Kurtz (and streamlined by Shen and Rumyantsev) was originally used to build a 1-generic below any 2-random. Bienvenu and Patey generalized the technique to other forcing notions and were able to show, for example, that every 2-random computes a DNC function which itself does not compute a DNC_h function with h a computable bound. In this talk, I will present two new results that further illustrate the power of this technique:

1. There exists a computably random X such that for almost every Y, X is not Y-computably random (answering a question implicitly left open in some prior work of Buss and Minnes)

2. For every 1-random X, there exists an infinite subset Z of X which does not compute any 1-random (this was already proven recently by Kjos-Hanssen and Liu, but our proof is perhaps a bit easier and proves a little more)

[This is joint work with Tomasz Steifer and Valentino Delle Rose]