

One other important take-home lesson to be learned here is that human hearing is amazingly astute at analyzing temporal correlations, whereas human vision is not very good at analyzing temporal correlations, even when portrayed in a visual format – *e.g.* 1-D pulse trains on an oscilloscope. On the other hand, human vision is amazingly good at analyzing 3-D spatial correlations – enabling us to get around in the world...

Fractal music is a rapidly growing activity, and industry! The figure shown below indicates the consequences of extremes in exponent  $0 \leq \beta \leq 2$  for (a)  $1/f^0$  white noise (no correlations), (b)  $1/f^1$  pink noise (some correlations) and (c)  $1/f^2$  brown noise (strong correlations). For human listeners, white noise music is found to be too random – very annoying to listen to after a short while... Likewise, brown noise is found to be boring – it is too predictable, it doesn't “go anywhere”, musically. Pink noise is the most pleasing to our ears – it has some predictability, but also some surprises too – we humans do like complexity in our music – but not too much!

Early attempts at creating fractal music on a computer, *e.g.* generated with just temporal  $1/f^\beta$  “noise” fluctuations in amplitude/loudness and frequency/pitch (only) still sounded non-human, or “artificial” (*i.e.* computer-generated) – the addition of temporal  $1/f^\beta$  “noise” fluctuations in tempo/beat/rhythm are also needed in order for the fractal computer music to fully convincingly sound “human”.