Benchmarking Beyond CMOS Devices

Technology	Self-assembled molecular electronics
Gain/restoring level **Signal/Noise ratio** **Non-linearity**	Ok with SAMFET (to be optimized), (2-terminal junctionlow current (G_0 max) Noise not yet studied (a few publications) Mol junctions are mainly non-linear
Speed **Power consumption**	low low (50 zJ/mol switch)
Architecture/Integrability **(Inputs/outputs, digital,** **multilevel, analog, size etc.)**	molecule-NP 2D and 3D arrays could implement some functions (e.g. reconfigurable logic, neuro-inspired function)
Other specific properties	almost infinite combination of molecules, adjustable by chemistry, specific design (1 molecule = 1 function)
Manufacturability **(Fabrication processes** **needed, tolerances etc.)**	solution process, compatible with flexible substrate. Defect control? large variability (but not a problem if we envision ANN applications)
Timeline **(When exploitable or when** **foreseen in production)**	> 5 - 10y (if ever?)