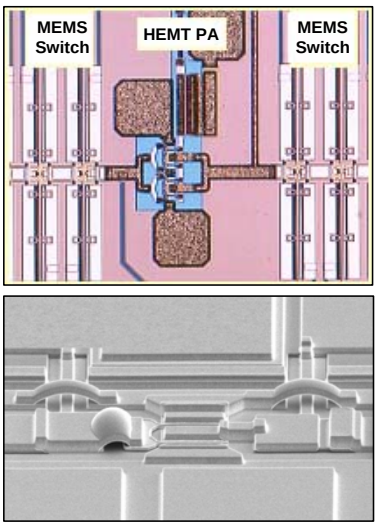
Technology Directions for Future RF Applications



Recent advances in the performance and maturity of a number of key technologies are enabling a new generation of electronic systems for future rf applications. Advanced semiconductors, photonics and nanotechnology are converging with new design, processing and packaging schemes to revolutionize rf system performance. Millimeter-wave circuits now operate above 300 GHz and digital circuits above 100 GHz. Monolithic integration of MEMS and HEMT devices enables intelligent circuits that can adapt to their environment. Low-power InSb devices enable microwatt receivers, while high-power GaN devices enable kilowatt transmitters. Microwave transceivers built using wafer-level micropackages reduce size and weight by a factor of 100, enabling new phased-array and other applications. We present here an overview of the key technologies behind these achievements and discuss their impact to future electronic systems.

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