

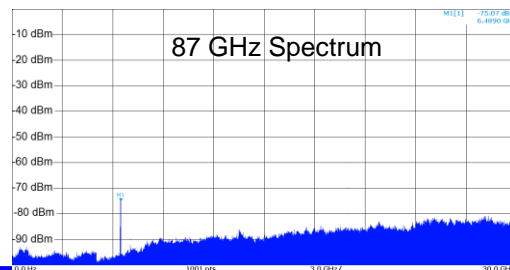
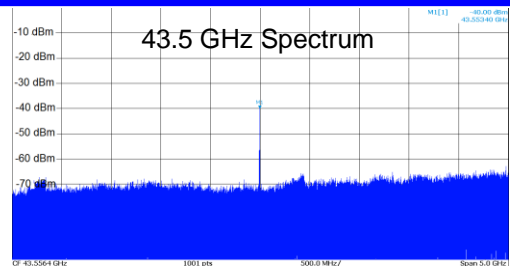
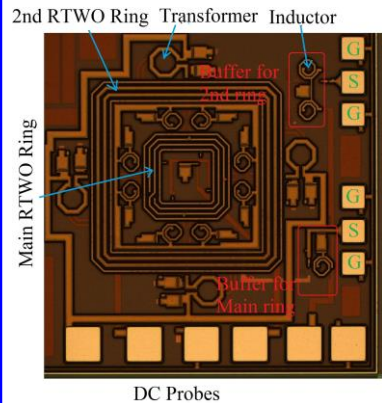
Fazle Rabbi

*Department: Electrical & Computer
Engineering*

*Title: “BiCMOS Rotary Travelling-Wave
Oscillator based Millimeter-Wave
Frequency Multipliers”*

Major Professor: Dr. Numan S. Dogan

Chip



RESEARCH QUESTIONS / PROBLEMS:

- Multi-ring RTWO design for W-band (75-110GHz) oscillation.

METHODS:

- Technology used BiCMOS 0.13 μ m 8HP and active components chosen SiGe HBT instead of n/pFET.

RESULTS / FINDINGS:

- Designed multi-ring RTWO. Inner ring provide around 45-GHz oscillation with 2-GHz tuning and outer ring provides 90-GHz oscillation with 4-GHz tuning.

SIGNIFICANCE / IMPLICATIONS:

- In all reported works RTWO were designed by n/p FET. Due to large parasitic effect of FET, RTWO design was not possible for W-band oscillation. We have designed RTWO for W-band by using HBT.