
SIXLINE
SEMICONDUCTOR

SIXLINE SEMICONDUCTOR

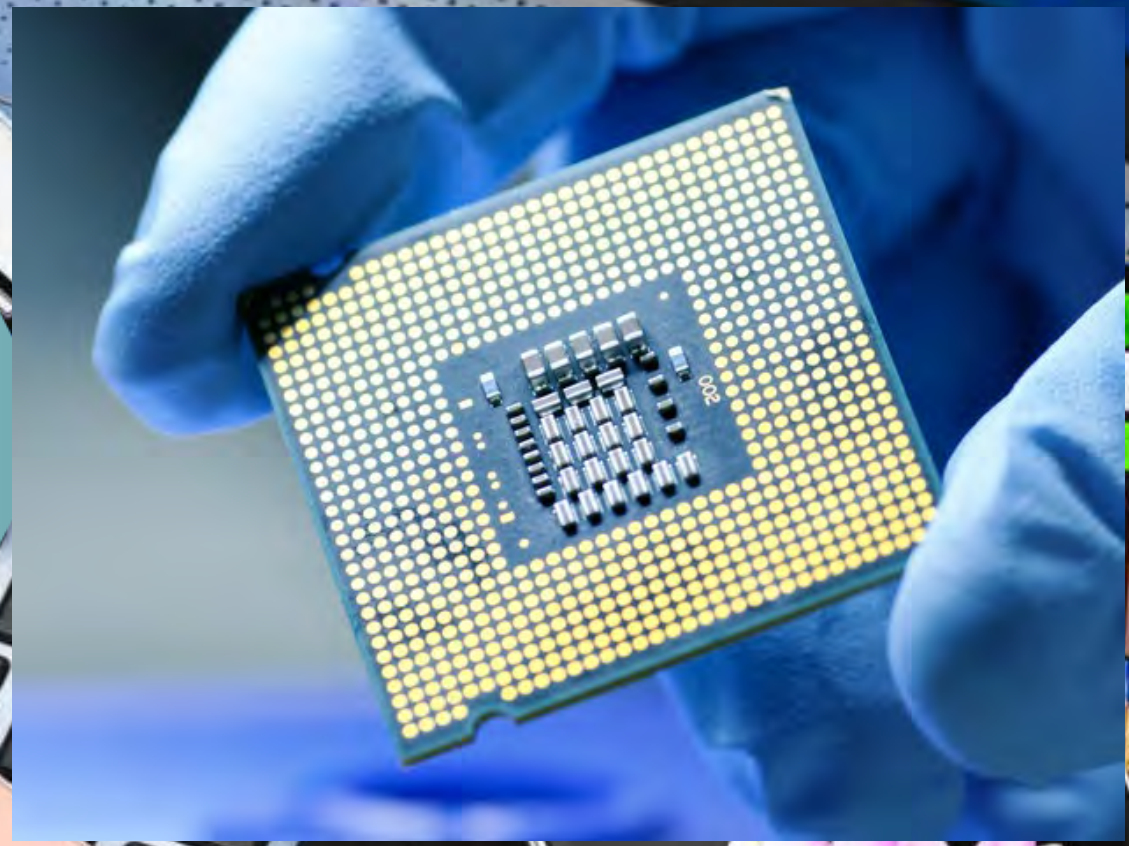
Founded Sept. 2022
UW-Madison Spinout

Overcomes 30-year challenge to leverage aligned carbon nanotubes for *faster performance, lower cost* radiofrequency devices, with possibility to expand into broader semiconductor device markets

Semiconductors are the basis of all modern electronics

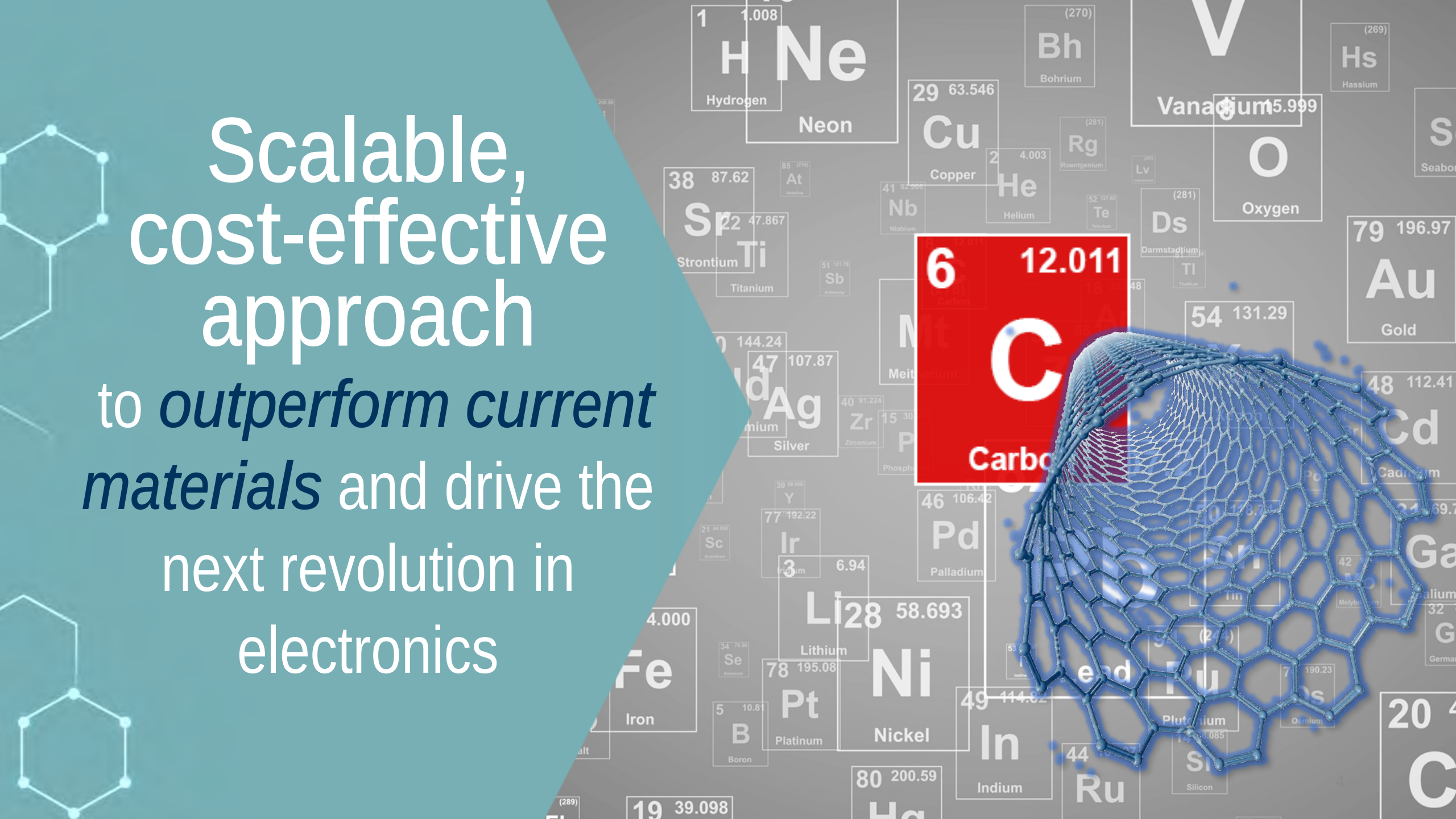
Current materials cannot meet demands of next-gen devices

- 3D ICs
- 6G/7G
- Sensors
- Flexible devices



Scalable, cost-effective approach

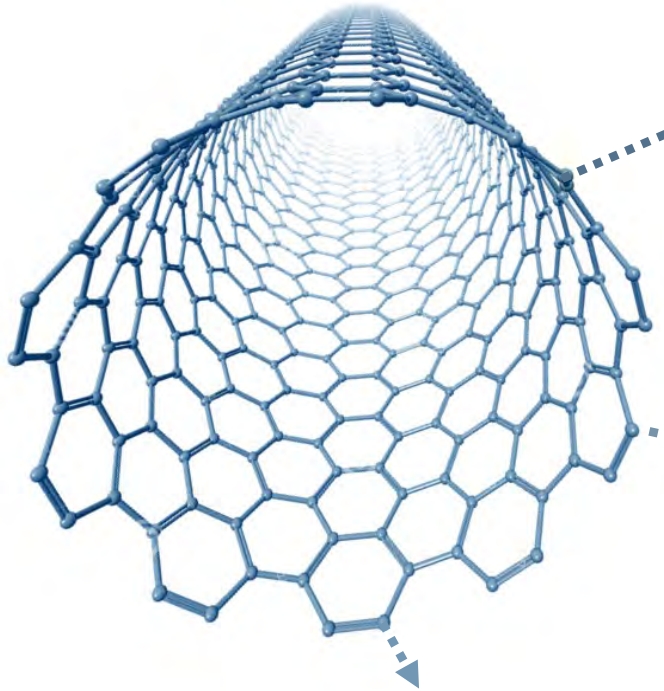
to *outperform current materials* and drive the next revolution in electronics



The Superior Performance of Carbon Nanotubes

Cost-effective solutions

Layer of carbon atoms rolled into a cylinder



SixLine's 1st Target Radiofrequency (RF)

- 3-8× higher frequencies than current materials
- On-chip integration with Si
- Larger data bandwidths
- Intrinsic linearity

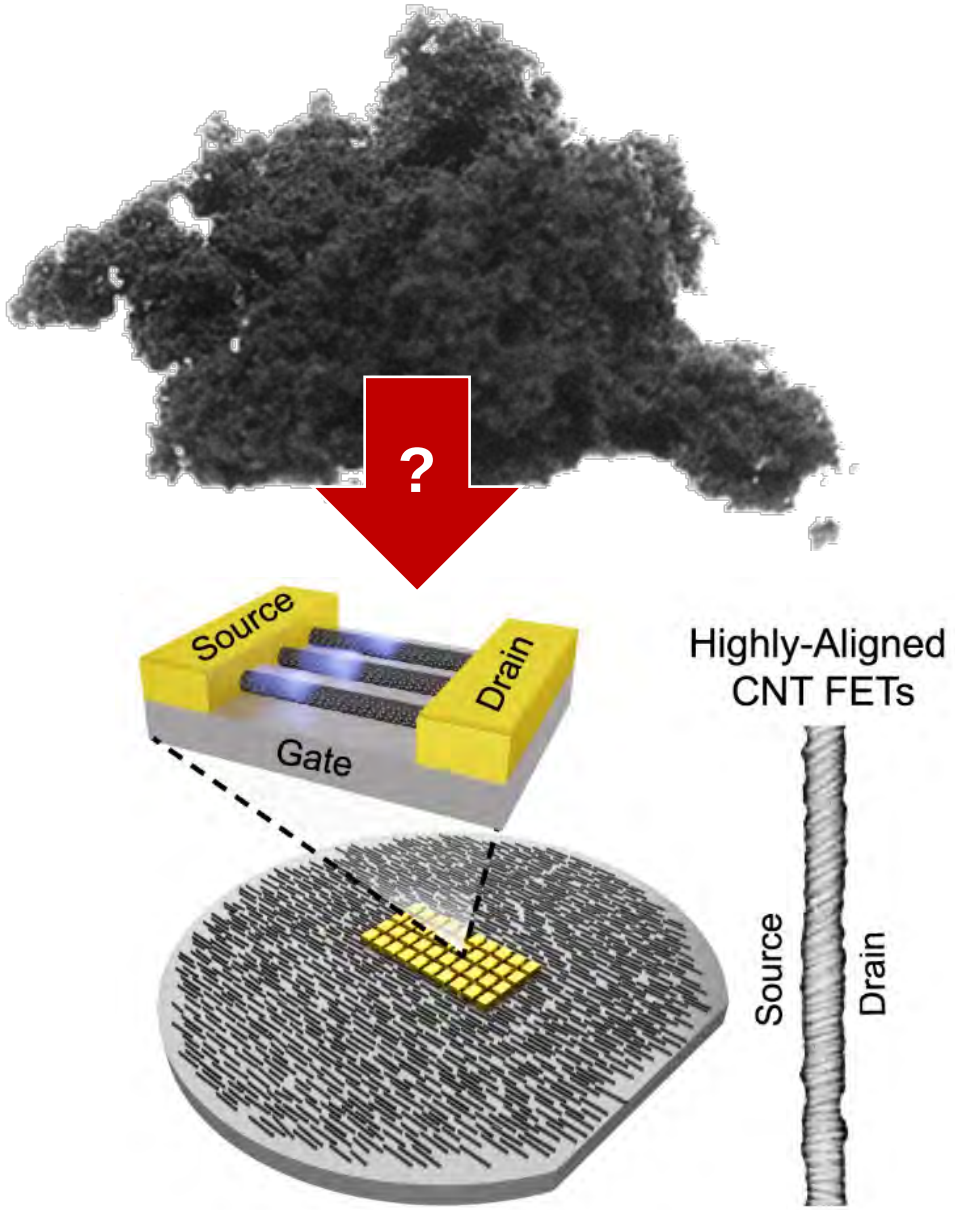
Logic

- 100 - 1000× lower power consumption
- Enables 3D circuits—route to advance Moore's Law

Thin-Film Electronics

- 10-100× faster performance
- Mechanically resilient

Nanotube Obstacles

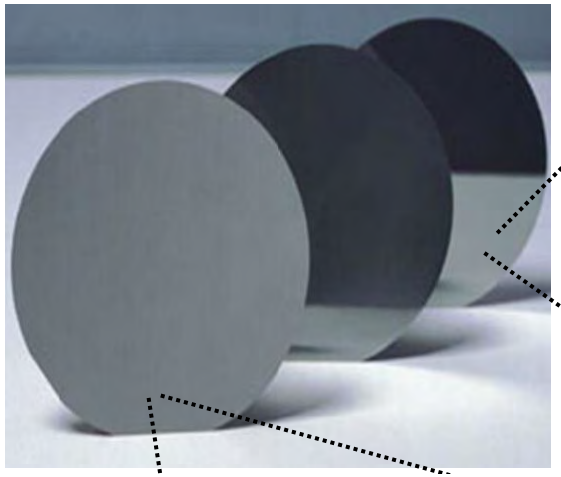


30-year challenge: translating random nanotube soot into highly-aligned semiconducting carbon nanotube arrays from a commercial and scalable process for high-performance electronics

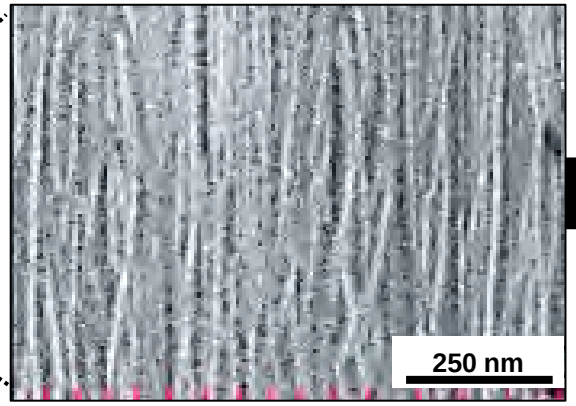
SixLine Produces Ideally Aligned Electronics-Grade Nanotubes

Highly-aligned, registered arrays of semiconducting nanotubes from a fast, easily scalable process

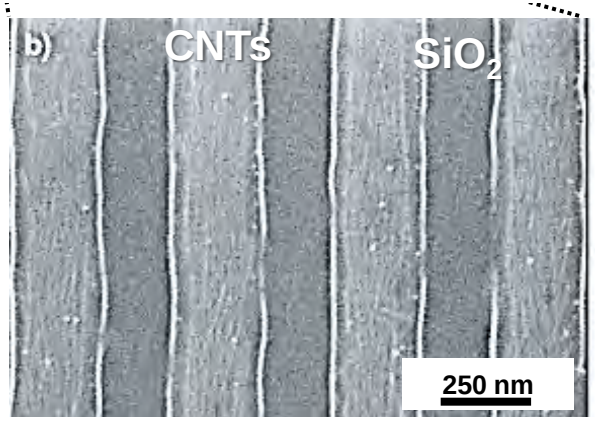
Industry scalable



Highly aligned (±7°)

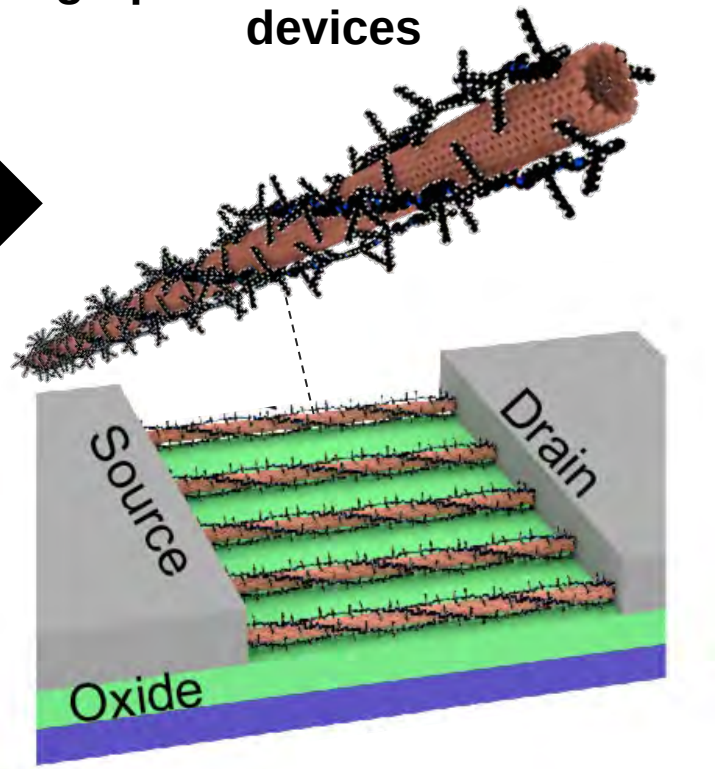


Registered Placement



- ✓ Compatible with conventional fabrication techniques
- ✓ Fast process—high info turns
- ✓ Manageable byproducts

High-performance electronic devices



Process occurs at room-temperature/pressure—**enables system-on-a-chip integration**

Strong Performance and Cost Advantages

PROPRIETARY PROCESS CONTROL

- Targeted Packing Density
- Room Temperature Process
- High Alignment
- Uniform Films
- Selected Placement

APPLICATIONS

COMPETITIVE ADVANTAGES FOR RF

Next-gen RF: 6G/7G, Advanced WiFi

- >3× frequency performance
- High data fidelity at high freq
- System-on-a-chip integration

30 – 60% Lower Cost vs GaAs

- >50% lower wafer cost
- 250% more fab facilities
- 55% lower die cost
- 65% throughput increase

Technology Traction

- 8 years of research
- $2M in research funding—significant progress
- Uniform alignment across 4” wafer demonstrated
- State-of-the-art RF device performance via previous industrial partner
- Strong industry engagement
- 10 patents (8 issued, 2 filed)
  - Process and composition of matter protection

Strong position in research area, comprehensive patent protection, capable founders, and experienced research team

SixLine's Technology has Large Potential Value Across Multiple Markets

RF Wafer Market

$2.1B

CAGR of 8.8%

Logic Wafer Market

$11.3B

CAGR of 3.6%

Semiconductor Fabrication Equipment Market

$119B

CAGR of 8%

SixLine's 1st Target Total Market

Application Markets

RF Components

$15B

CAGR of 16%

Biosensors

$24.9B

CAGR of 8%

Experienced Team

Katy Jinkins, PhD
CEO, Co-founder, Co-inventor

katy@sixlinesemi.com

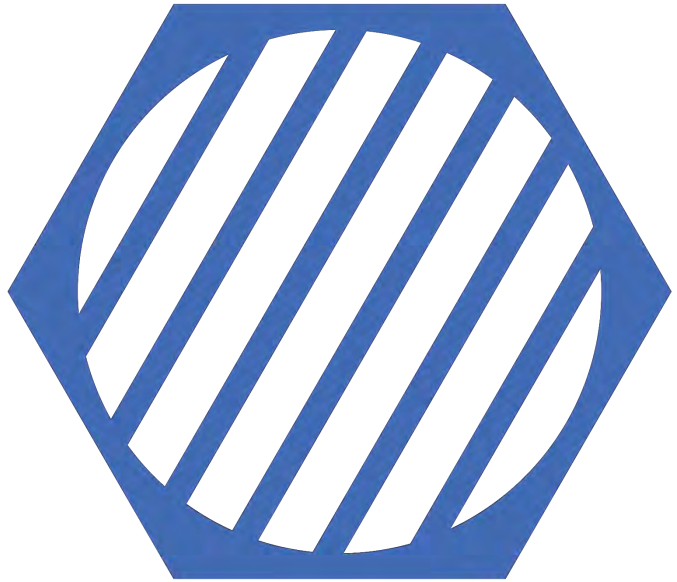
Prof. Mike Arnold, PhD
Chief Technical Advisor, Co-founder, Co-inventor

Jeff Moore
Strategy/Commercial Support

Dominick Bindl, PhD
Technical/Commercial Advisor

Prof. Padma Gopalan, PhD
Technical Advisor, Co-inventor

Significant amount of materials, industry, and startup expertise



SIXLINE SEMICONDUCTOR

Produces nanotube materials/arrays enabling next-gen electronic performance

- Significant performance and cost advantages
- Comprehensive IP library
- Strong industry engagement
- Overcomes 30-year challenge to leverage aligned carbon
- Current market focus: RF
- Will expand into other semiconductor markets