2D fab

Large scale manufacturing of green graphene

2dfab.com

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GIGANTIC END CUSTOMER MARKET

ENERGY STORAGE – BATTERY ANODES

ENERGY STORAGE - HEAT

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2D FAB BUSINESS MODEL

Graphite Raw material → **2D^{X} process** → 2D materials Graphene

Licensing → Selected companies
Selected markets

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THE GRAPHENE PROBLEMS

- Large volumes
- Environment
- Performance/Price
- Application in other materials

?

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2D^{X} – A UNIQUE PRODUCTION PROCESS

- Fully exponentially scalable
- Environmentally friendly
- Energy efficient
- Customizable graphene

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2D FAB'S APPROACH TO GRAPHENE IN BATTERIES

"Change the energy carrier from graphite to silicon"

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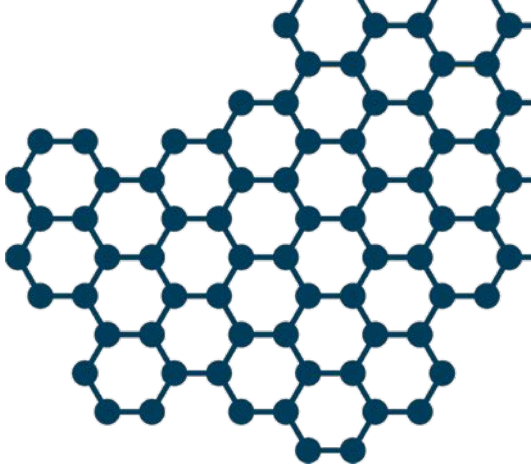
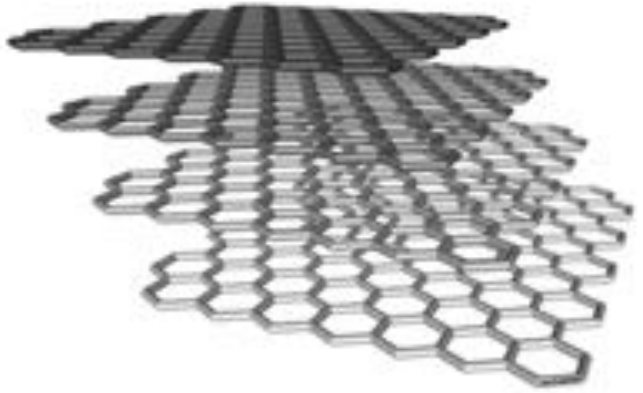
GRAPHENE – A FACILITATOR



- Good electrical conductivity
- ”Strong” structures
- Si nano-particle generation
- Increased production efficiency



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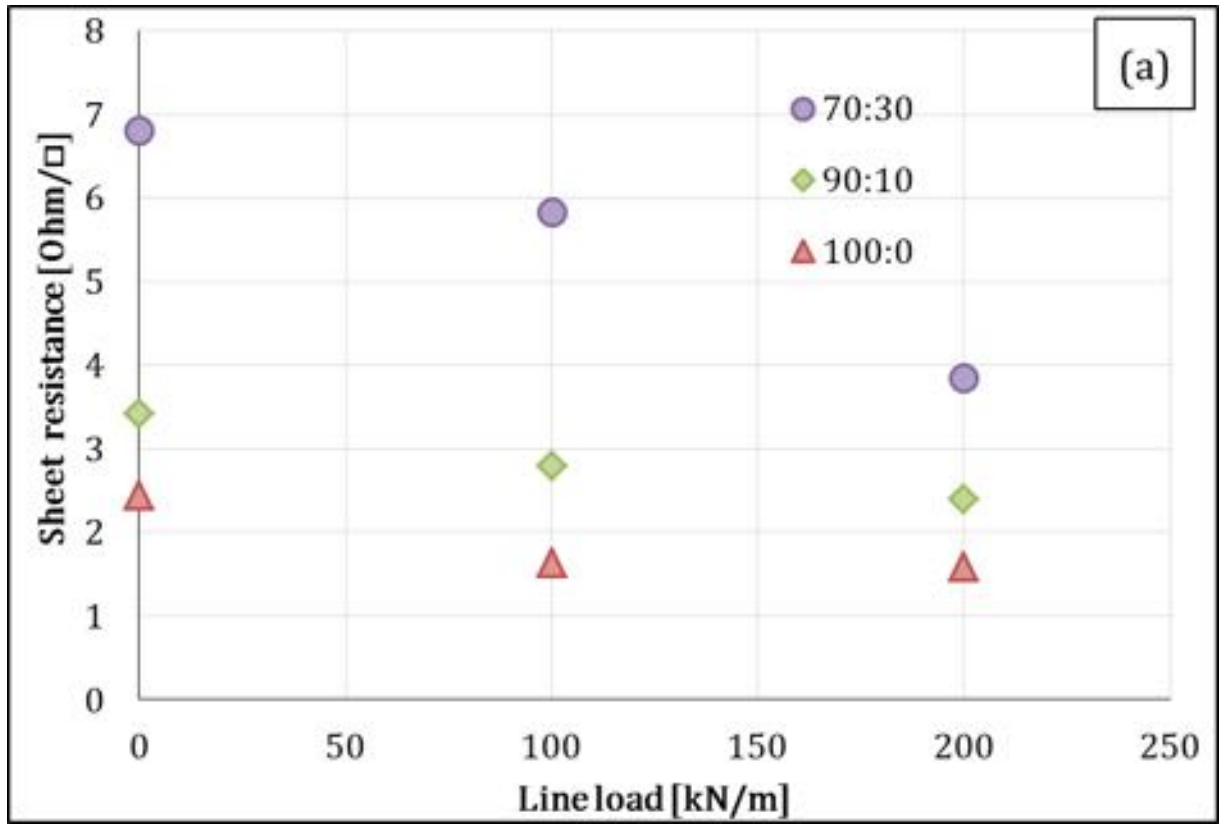
GOOD ELECTRICAL CONDUCTIVITY



Kumar et. al.
Conductive nanographite–nanocellulose coatings on paper
Flexible and Printed Electronics, 2017

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"STRONG" STRUCTURES

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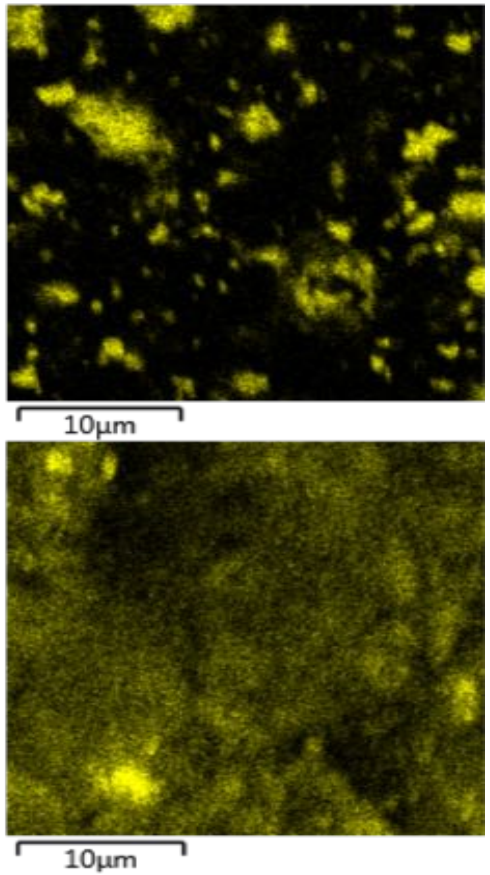
SI NANO PARTICLE GENERATION

Before



After

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FACILITATING PRODUCTION

- **Production speeds**

Battery anodes
100 m/min

Pigment coating on paper
3000 m/min

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CONSTRUCTING A VALUE CHAIN

Raw materials ✓ → Anode materials ✓ → Anode production ✓ → Batteries ✓

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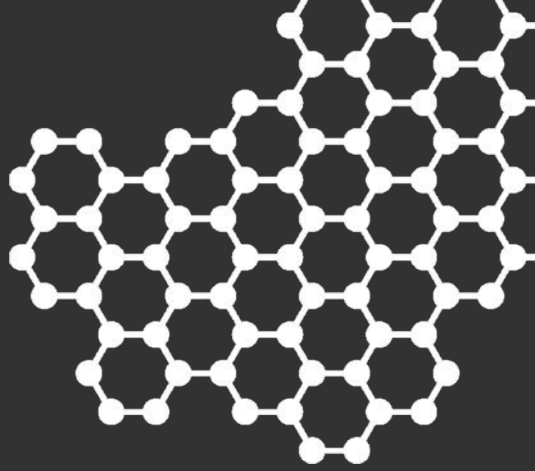
SUMMING UP



- **“Change the energy carrier from graphite to silicon”**
- Good electrical conductivity
- ”Strong” structures
- Si nano-particle generation
- Production
- Value chain

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QUESTIONS

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CONTACT

Sven Forsberg, CEO
+46 (0) 70 341 86 40
sven.forsberg@2dfab.se

www.2dfab.com

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