Condensed Matter Fuel Cells

to power electric vehicles

Nicolas Chauvin
CEO

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Company Introduction

- Based in Lausanne, Switzerland
  - in EPFL Science Park
- Founded in March 2012
- Funding
  - 2012: $75,000 (FFF)
  - Currently: under due diligence for $420,000 seed round (BA)
- 2013 Budget: $60,000
- 2014 Budget: $200,000
- Current Staff
  - 1.5 full time + 1 trainee and lots of volunteering partners

Management Team

LENR Cars
Self Powered LENR Electric Vehicles

Nicolas Chauvin

Technology Strategist

EPFL & HEC-Lausanne

Serial entrepreneur

Previously worked for:

- NASA
- Nestlé
- Logitech

Antoine Guillemin

Energy Expert

PhD Building Physics (EPFL)

MSc Nuclear Physics (EPFL)

Serial entrepreneur

Expert in energy efficiency & renewable energy

Daniel Borel

Key Advisor & Mentor

Founder of Logitech

Board member of:

- Nestlé
- Logitech

Strategy

LENR Cars
Self Powered LENR Electric Vehicles

- Accelerate the path towards LENR electricity production
- How? By setting up win-win collaborations with partners
  - LENR generators makers
  - Thermoelectric conversion systems makers
  - Industrial partners interested in mobile & scalable power source
- Long Term Scenario
- Secure applications with IP
- Strategic Plan
  1. Networking & business development
  2. Leverage funding
  3. Build electric generator demonstrator with technical partners
  4. Engage major key players

Business Model

LENR *Cars*
Self Powered LENR Electric Vehicles

- Technology & engineering company
  - Focus on IP first

- Short Term: sell prototypes
- Medium Term: sell IP licenses
- Long Term: sell products in partnership with key industrial partners

- Objective:
  - Control a large portion of patents on applications combining **LENR** with **Thermoelectric Conversion**

Transportation Applications

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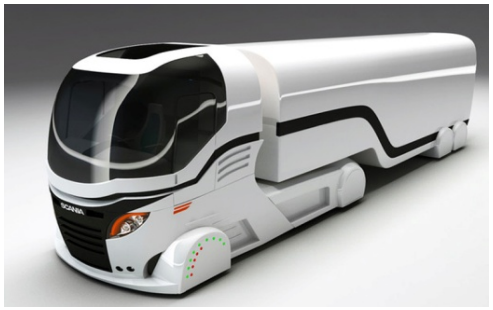
Self Powered LENR Electric Vehicles



Electric Vehicles

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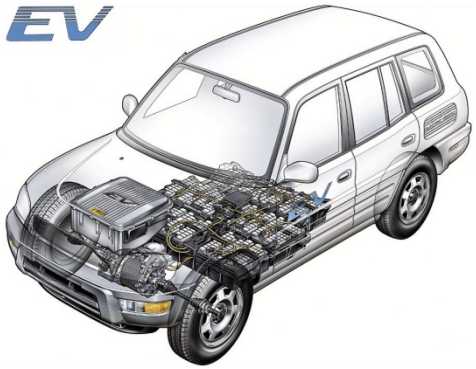
- Today, an electric vehicle requires large batteries
- Battery limitations:
  - major cost adder
  - heavy additional weight
  - reliability issues, limited lifetime
  - limited range
  - risk of fire in case of crash



- We propose a new kind of electric generator:
  - low cost
  - extremely high capacity
  - safe operation
  - long lifetime, 30 years
  - very low maintenance
  - green to produce and operate (zero emission)

Fuel Cells & Batteries

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LENR Generator	Fuel Cell	Li-Ion Battery
		
Fuel: Hydrogen + Nickel Consumption: 7 mg / kWh Capacity: 4000 kWh Weight: 100 kg	Fuel: Hydrogen + Oxygen Consumption: 31g / kWh Capacity: 10 - 200 kWh Weight: 25 – 500 kg	Li-ion chemistry Plugin recharge Capacity: 10 – 85 kWh Weight: 60 – 500 kg

LENR Generator Capacity

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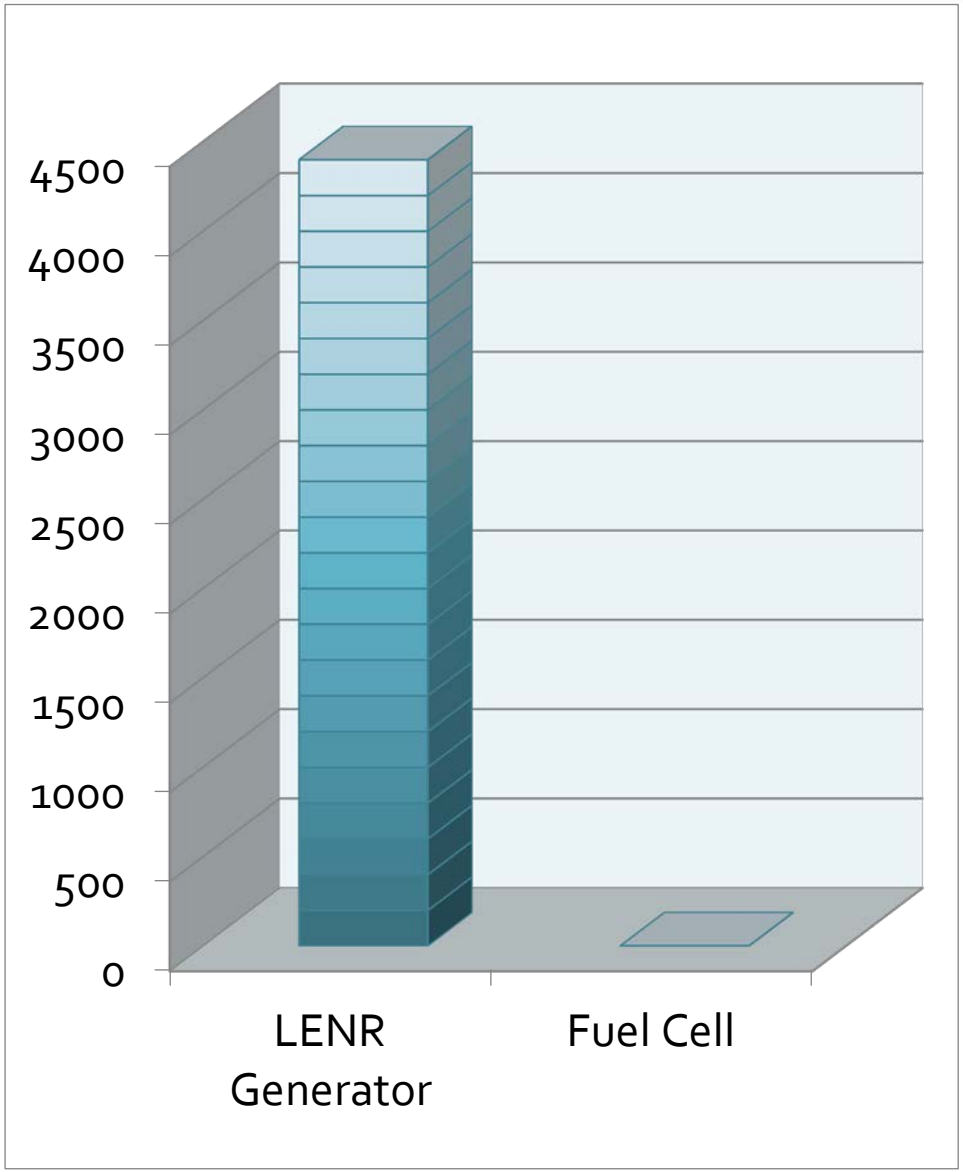
For a car:

20,000 km
between refueling

€ 200
cost of refueling



Heat To Electricity

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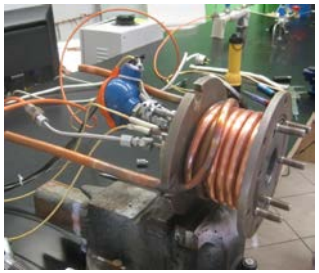
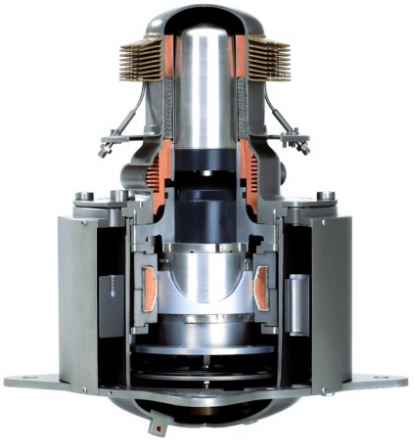
Self Powered LENR Electric Vehicles



- LENR generators produce heat
  - requires electricity to produce heat
  - with a COP: 10+



- Thermoelectric conversion systems
  - convert heat into electricity
  - e.g.: Rankine turbines, Stirling generators

- Winning combination
  - combining these 2 technologies
  - LENR ⇨ In: 1 kW_e + H_2/Ni Out: 10 kW_T
  - TEC ⇨ In: 10kW_T Out: 2.5 kW_e + 7 kW_T 0.5 kW_{loss}
  - Total ⇨ In: grams of H_2/Ni Out: 1.5 kW_e + 7 kW_T

Thinking Out of the Box

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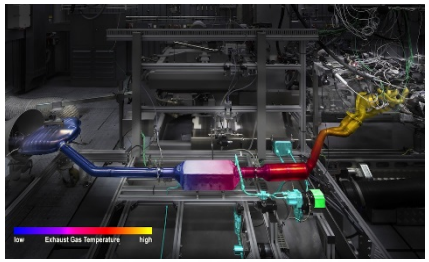
- Need to find a less controversial way to develop heat to electricity conversion
- 24 Hours of Le Mans car racing
  - Oreca LMP1 Hybrid
  - Developing exhaust heat recovery system



Our LENR Ecosystem

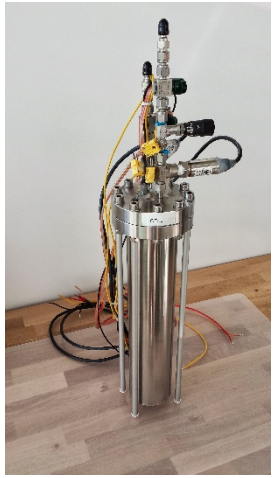
- LENR Cars
  - Transportation industry
- LENR Invest
  - Financial company
- LENR Cities
  - Join venture platform linking research & industry
- Swiss E-Cat licensee
  - Informs the industry of LENR existence
- Quantum Heat / MFMP
  - LENR, the open source way

- Collaborations with:
  - Defkalion
  - Japanese Stirling manufacturer
  - Transportation industry companies (confidential)
    - automotive
    - and not automotive

Achievements, Current Status

LENR Cars
Self Powered LENR Electric Vehicles

- 2 low power **LENR demonstrators** running in our lab (Celani + Mizuno)
- 1 **patent** application filed in 2012
- **Collaborations** with Defkalion GT, next steps under discussion
- **Collaborations** with Leonardo Corporation licensees
- **Partnership** with **Stirling** generator company
- **Replications** of Celani experiment through MFMP
- **Live data acquisition** system (HUG - MFMP)
- Supported by **IMD business school**
- In contact with some major industrial and transportation companies



Seed Funding Phase

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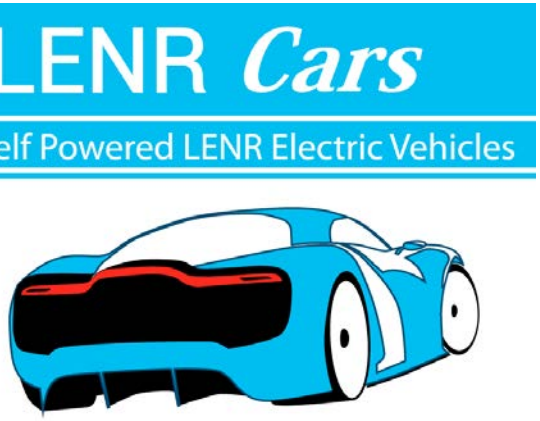
- **CHF 400,000** for next 18 months

- Use of funds
  - Build combined LENR + Stirling generator prototype
  - File for additional patent applications
  - Develop our own thermoelectric conversion systems

Thank You

Nicolas Chauvin
CEO



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