Contact

www.linkedin.com/in/andreiklochko (LinkedIn)

Top skills

Thermodynamics
Startups
Product Development

Languages

Russian (Native or Bilingual)
English (Full Professional)
French (Native or Bilingual)
Chinese (Elementary)

Publications

TALIF measurements of oxygen atom density in the afterglow of a capillary nanosecond discharge

Investigation of capillary nanosecond discharges in air at moderate pressure: Comparison of experiments and 2D numerical modelling

Andrei Klochko

Co-founder and CEO at Airthium (YC S17)
Paris area, France

Summary

We are currently hiring (in France): 1 research scientist in physics and/or mechanical engineering, PhD graduate or Post-doc.

We are also open to internship positions in France for students pursuing a Master's degree or equivalent.

If you want to apply, send us an email with your resume at careers@airthium.com

Airthium's mission is to make renewable electricity cheaper than fossil fuels, 24/7, 365 days a year, in order to speed up the clean energy transition. We make "seasonal" batteries that store up to 1 year's worth of clean electricity at 1% of the current cost. Our batteries are built around a new kind of Stirling engine; we will first bring this engine to market as a high temperature (100°C - 550°C) heat pump to decarbonize heavy industry.

We are part of Y Combinator batch of Summer 2017, and are laureates of the World Innovation Contest (Concours Mondial de l'Innovation, Phase d'Amorçage) held in Paris, France in 2016.

Experience

Airthium
Co-founder and CEO
March 2015 - Present (7 years 2 months)
Les Loges-en-Josas, Île-de-France, France

Airthium's mission is to deploy machines to make net zero worldwide CO2 emissions by 2050 a profitable enterprise. We are developing two products: (1) a "seasonal" battery that stores up to 1 year's worth of clean electricity at 1% of the current cost, guaranteeing access to 100% renewable energy 24/7, 365 days a year; (2) a high temperature (550°C) heat pump to help decarbonize

industrial heat profitably.

Solar and wind energy can decay by 25-70% over 5-20 consecutive days over territories as large as Europe, every year. It is to cope with those few weeks of bad weather that the grid's large fleet of fossil fired power plants (gas, coal and nuclear) must remain available all year long. The problem is that this fossil fleet is used less and less each year as more renewables are deployed, making each fossil kWh more expensive and impacting electricity costs for end customers.

Airthium's seasonal energy storage system is a 100% renewable, and eventually cheaper, alternative to those baseload and backup fossil-fired power plants. We use excess renewable electricity to synthesize ammonia from water and air, store it for months (500x cheaper than lithium-ion, can be sited anywhere), and then burn it in our new kind of Stirling engine, releasing no CO2 (only nitrogen - N2 - and water). The Stirling engine also powers a shorter-term pumped heat energy storage (PHES) system in molten salt, with 70% roundtrip efficiency. Seasonal ammonia and daily cycling molten salt work in synergy to decrease costs.

Lithium-ion grid storage had electric cars, which in turn had portable electronics as a beachhead market. Similarly, we will first deploy our Stirling engine alone as a high temperature (100°C-550°C) heat pump to decarbonize industrial processes, to get to market faster.

I co-founded Airthium in March 2015; the company was incorporated one year later, and received funding from Y Combinator and other investors in the summer of 2017. I currently serve as CEO and CSO.

Laboratoire de Physique des Plasmas, Ecole Polytechnique
3 years 5 months

Post-doctoral fellow
January 2015 - February 2015 (2 months)
Palaiseau, France

Completion of projects which were started during my PhD Thesis. Experimental study of the collisional deactivation of electronically excited states in highly excited air and nitrogen plasmas. Academic research having applications in plasma assisted combustion ("better engine ignition"), and air flow control in aerospace applications (plasma actuators).

PhD Student
October 2011 - December 2014 (3 years 3 months)
Palaiseau, France

Experimental and numerical study of pulsed nanosecond discharges. Use of a carefully designed experimental platform to validate an excited species chemistry kinetic model. I studied fast (100 ns), uniform gas heating in plasmas, which has applications in combustion and ignition enhancement and aerodynamic flow control.

The work featured laser diagnostics, nanosecond time-resolved electrical diagnostics and imaging, spectroscopy, and numerical simulation, in collaboration with Moscow State University and University of Michigan.

Laboratoire de Physique des Plasmas
Intern
March 2011 - June 2011 (4 months)
Palaiseau, France

Preliminary work on my PhD thesis subject, focused on time-resolved electric field measurements in cold plasmas

Education

Ecole polytechnique
Master of Engineering (M. Eng.), Physics · (2007 - 2011)

Lycée Masséna
Mathematics and Physics · (2005 - 2007)