Mobility Tech Day

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Batteries Now Power Everything

Everything Takes Too Darn Long to Charge

LONG CHARGE TIMES

72 to 96 Hours at 110V
7.75 to 10 Hours at 220V
1 to 1.33 Hours at 440V

3-6 hours

TODAY'S FAST CHARGE TECH

Brute force approach of just pushing more current into existing battery structures causes 3 problems

Decreases Life of Battery

Chemical break downs causes batteries to have much shorter lifetimes

Creates Excess Heat

Wastes energy, needs to be managed, limits current & therefore speed of charge

Still Not That Fast

Chemical process is slower so basically although faster it is just not that fast

Battery Streak Batteries Charge to 80% in 10 minutes

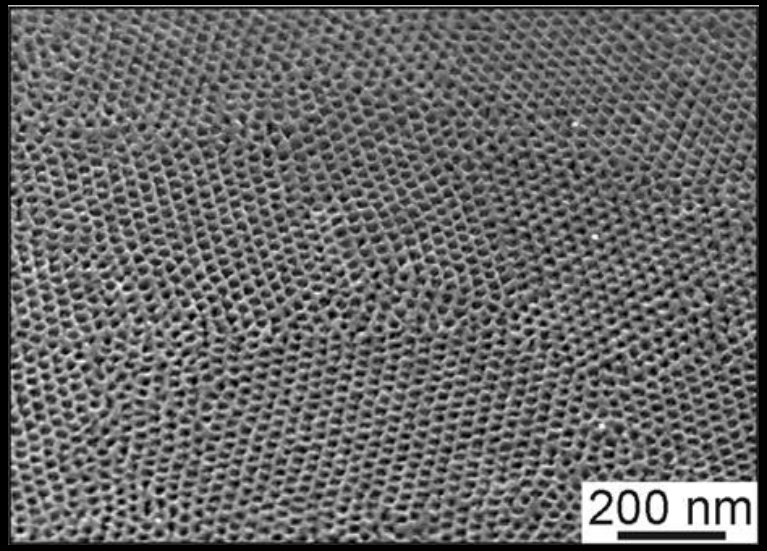
OUR BREAKTHROUGH

New nano-structured material for the electrode allows for a massively parallel charging process

- Sponge like material with pores of 20 to 50 nanometers. *(Human hair is about 200,000 nanometers)*
- Stores energy like a capacitor- electrostatic surface (Not a chemical storage) charge. Discharges like a battery
- Charges Fast …
  - Without impacting battery life
  - Without heat
  - And much, much faster

PATENTED MATERIAL - NIOBIA

Mesopourous Materials Provide Very Large Surface Area Per Unit Volume



SEM image of mesoporous TiO_2 film

- Multiple issued patents
- Material invented at UCLA, exclusively licensed and developed at Battery Streak
- Prototype batteries created with standard lithium ion battery production process

WHERE WE CAME FROM

2008 - Research started at UCLA – Dr Bruce Dunn & Dr. Sarah Tolbert

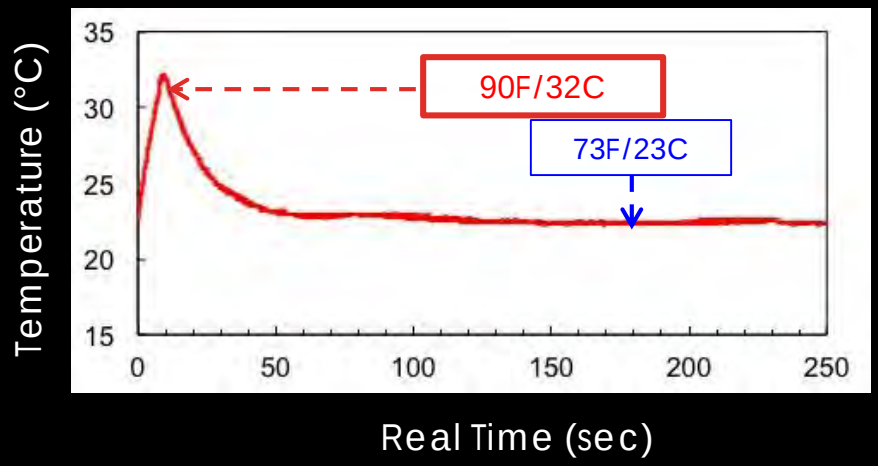
May 2017 - Battery Streak formed to commercialize the technology

- Seed round led by Act One Ventures

PROTOTYPE BATTERIES

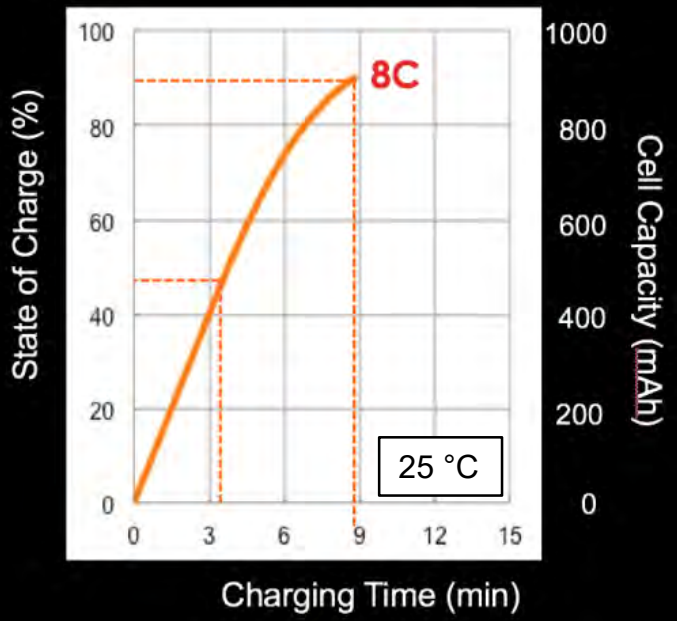
Roadmap to 400 Wh/L

Max Temp = 90°F/ 32°C
While Charging at 10C



Charges Super Fast

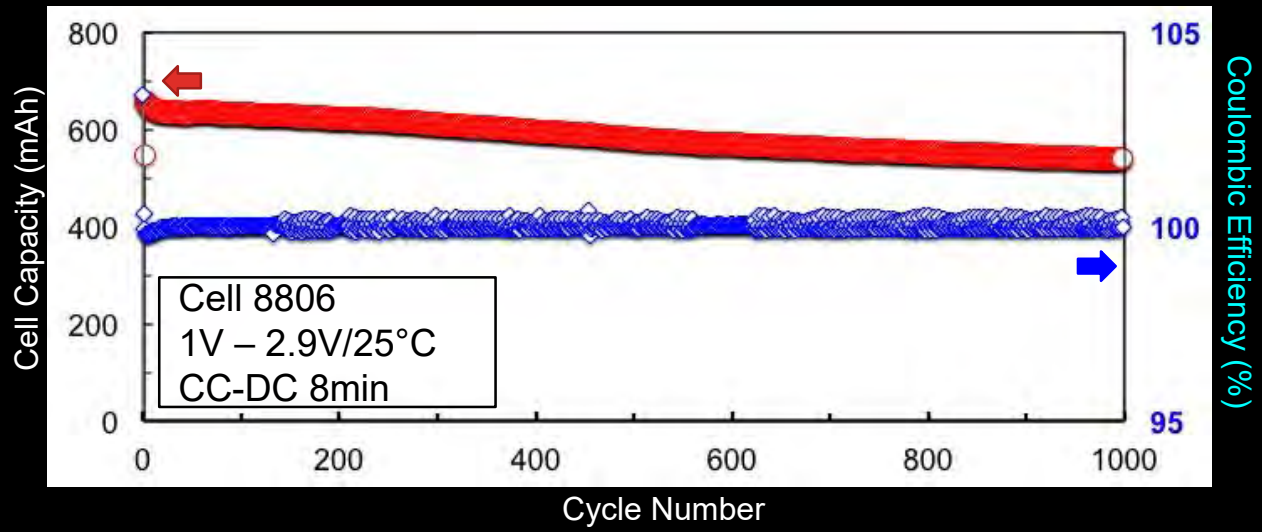
<80% charged in <10 minutes, 50% in 3.5



LONG BATTERY LIFE

Long Lasting

4 Amp Shallow Cycling
(60% SOC)
For 1000 cycles



CHARGE TIME CALCULATION

60 KWh battery pack provides about 200 miles

60 KWh Battery pack X 60min / min = 3,600 KWmin

To charge in 10 minutes = 3,600 Kwmin / 10 min = 360 KW

ChargePoint Express Plus Charger = 500 KW

MARKETS

- Warehouse Robots 40,000
- Power Tools (WW/YR) 15,000,000
- Industrial Tablets (WW/YR) 159,000,000
- Cell Phones (WW/YR) 160,000,000
- Video Cameras (WW/YR) 8,000,000
- Electric Vehicles (US/YR) 1,000,000
  - Battery Packs
  - Regenerative braking

FUNDAMENTAL NEW TECHNOLOGY

People wanted bigger TVs

Tube TV

Bigger screen required exponentially more depth and weight

Largest commercial TV was 40" and 750 pounds

Flat Panel

Fundamental new tech comes along without those limitations

Large screens possible without huge depth or weight

New markets created to put screens in cars, phones, etc.

GAS VS ELECTRIC CAR

- Gasoline car range 300 miles
- Electric car range 300 miles

- Gasoline fill time 3 to 5 minutes
- Electric car fill time 1.5 hours minimum

- 78% of trips < 10 miles Source: Rob Van Haaren

THE NEW EV MODEL

- COULD make cars with a smaller range
  - 100 to 200 miles
  - Smaller battery packs
  - Regenerative braking

- Battery chargers at every gas station
  - Cup of coffee or Check your email

- Increase the TAM for EV and chargers by many 0000s.

Need to move from a
MAX MILES per charge mindset
To
MINUTES TO CHARGE mindset

BATTERY STREAK
CHARGE LIGHTNING FAST

Thank you For Your Time

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