

Z Λ P ≠ G O

THE ULTRA FAST CHARGE

CARBON-ION™: SAFER, FASTER CHARGING ALTERNATIVE TO LITHIUM-ION BATTERIE



Cordless 



Mobile 



Facilities 



Personal Transport 

CHARGES  
IN JUST  
5 MINUTES



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## ABOUT Zap&Go

- Zap&Go was founded in 2013 to develop the next generation of energy storage devices called Carbon-Ion [www.zapgo.com](http://www.zapgo.com)
- Carbon-Ion (C-Ion) cells contain nano carbons including graphene, charge much faster than lithium-ion (Li-ion) batteries and do not catch fire, so do not have any of the issues experienced by the recent [Samsung recall](#)
- The IP originates from the University of Oxford in the United Kingdom
- To date, Zap&Go has raised approx. \$11m and is seeking to raise up to \$30m in an APO or A round to build a pilot production facility and accelerate R&D
- Large scale production is planned in 2017/2018

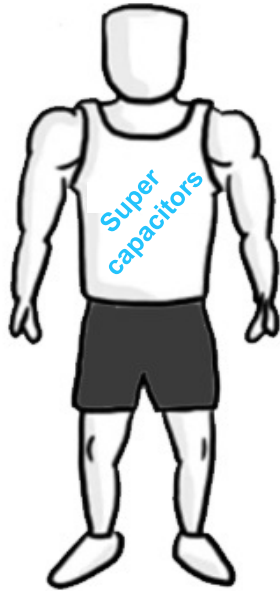
[Click to play video, Zap&Go IP from University of Oxford](#)

## CORE VALUES

- ✓ Faster charging
- ✓ Safe
- ✓ Longer life
- ✓ Recyclable



## ATHLETE BUILD DIFFERS FROM SPRINTER TO MARATHON RUNNER



SPRINTER



ZAP ≠ GO



MARATHONER

Lithium-ion batteries are built for marathons, long distance running  
Supercapacitors are built to be 100m sprinters, very fast over short distances

Zap&Go Carbon-Ion cells are built to be middle distance runners

## ATHLETE BUILD DIFFERS FROM SPRINTER TO MARATHON RUNNER

	Li-Ion	Ni-Cd	NiMh	Super-capacitor	C-Ion
Energy Density	High	Medium	Medium	Low	Medium
Speed of charge	Slow	Slow	Slow	Fast	Fast
Cycle life	Thousands	Thousands	Thousands	Hundreds of Thousands	Hundreds of Thousands
Recycle	Difficult	Difficult	Difficult	Difficult	Easy

Lithium-ion batteries are built for marathons, long distance running  
Supercapacitors are built to be 100m sprinters, very fast over short distances

Zap&Go Carbon-Ion cells are built to be middle distance runners



## OUR TECHNOLOGY AT CES, LAS VEGAS



January 5-8, 2017: Zap&Go demonstrated [Carbon-Ion](#) alternative to lithium-ion at Consumer Electronics Show (CES) in Las Vegas embedded in [Razor electric scooter](#), [Stanley Black & Decker cordless drill](#), [cordless cleaner](#) and [powerbank mobile phone charger](#) that charges in 5-minutes.

TECHNOLOGY ROADMAP – GEN 4 IS PARITY WITH LI-ION BY 2018



2016

**Gen 2:**  
Completed, CES  
prototypes



2017 / 2018

**Gen 3:**  
Production line  
specified



2018 / 2019

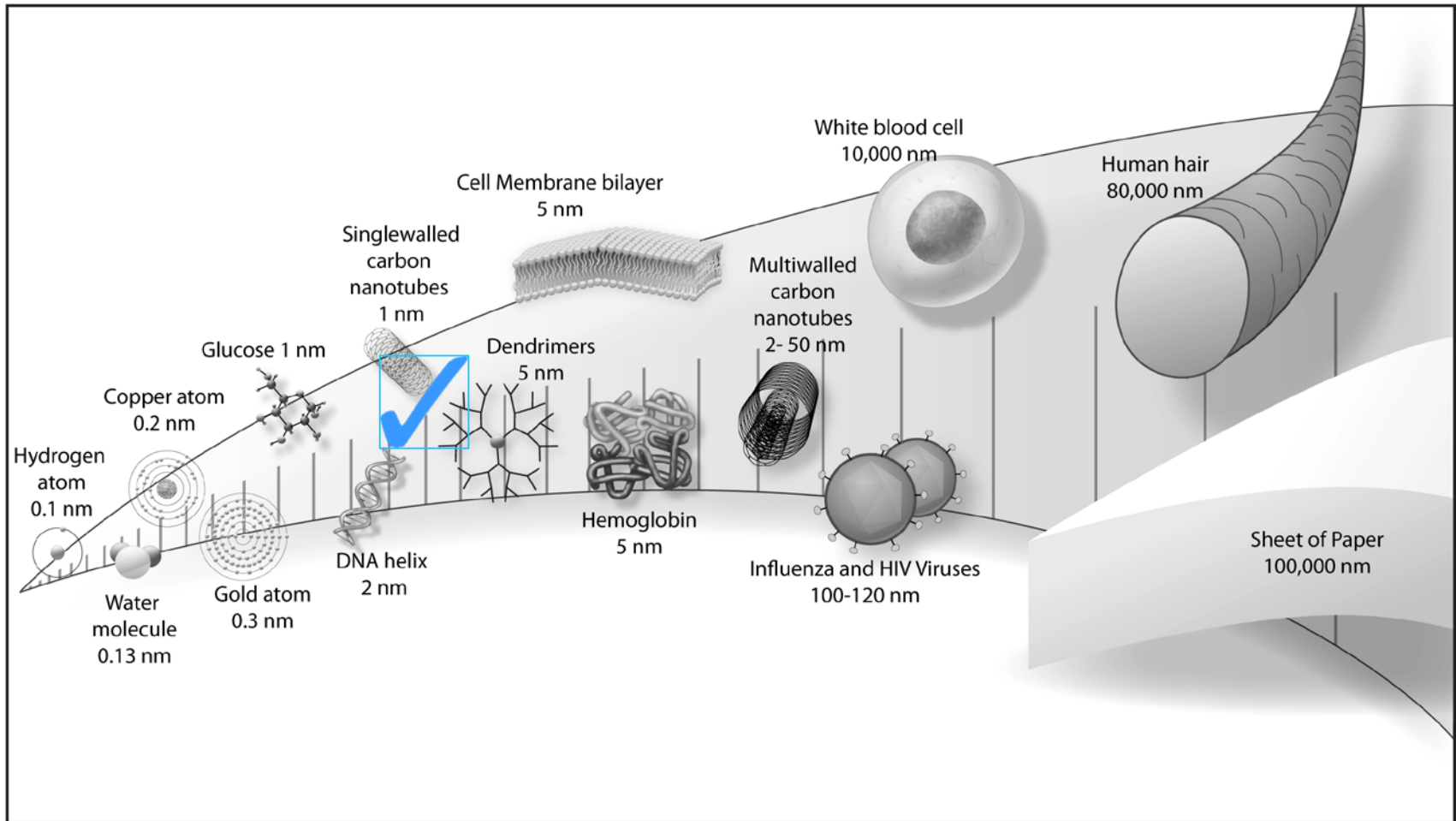
**Gen 4:**  
R&D  
underway



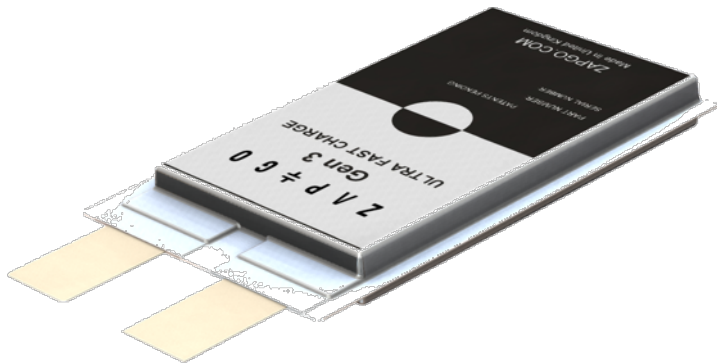
\*Gen 4 goal is equivalent of power (mAh value) of good quality 18650 Li-ion cell at 500 charge/discharge cycles c.1750mAh



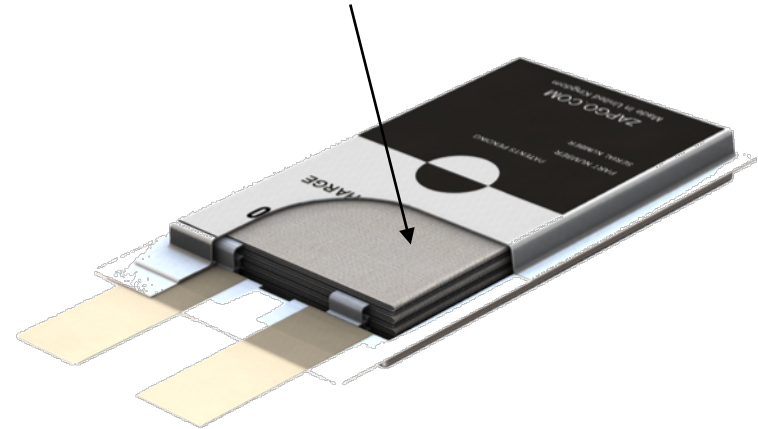
## WE USE NANO CARBONS, SMALLER THAN DNA



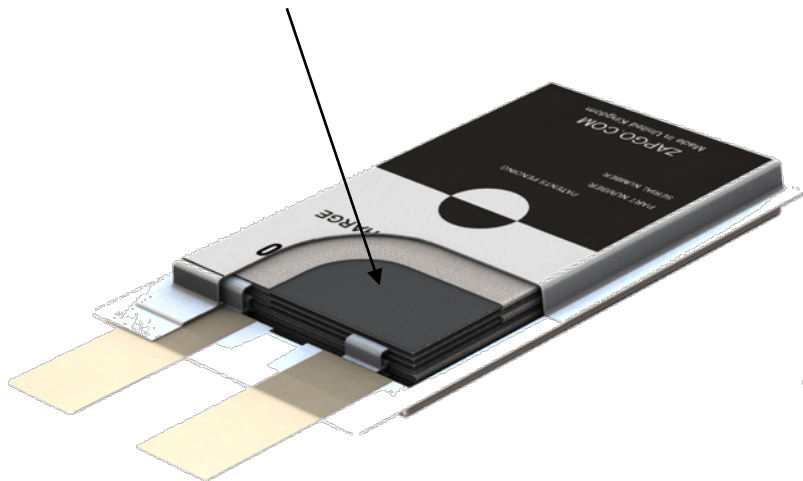
Carbon-Ion cell



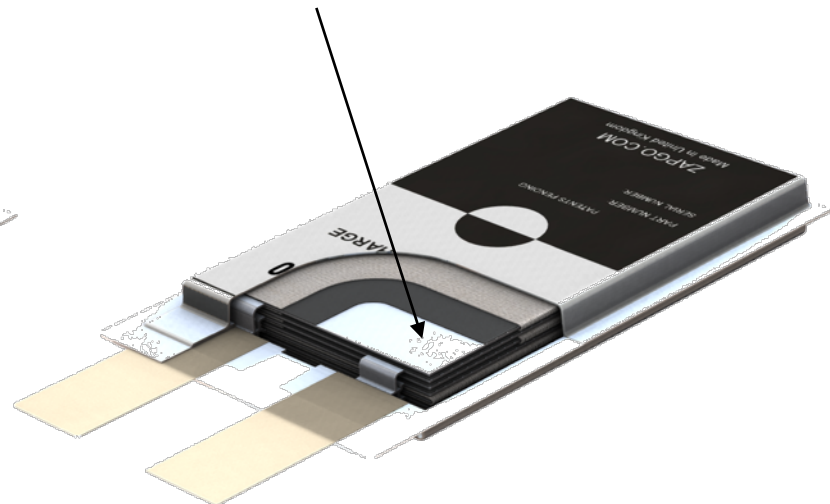
Low-cost battery grade separator



Nano-carbon coated aluminium foil



Ionic electrolyte gel

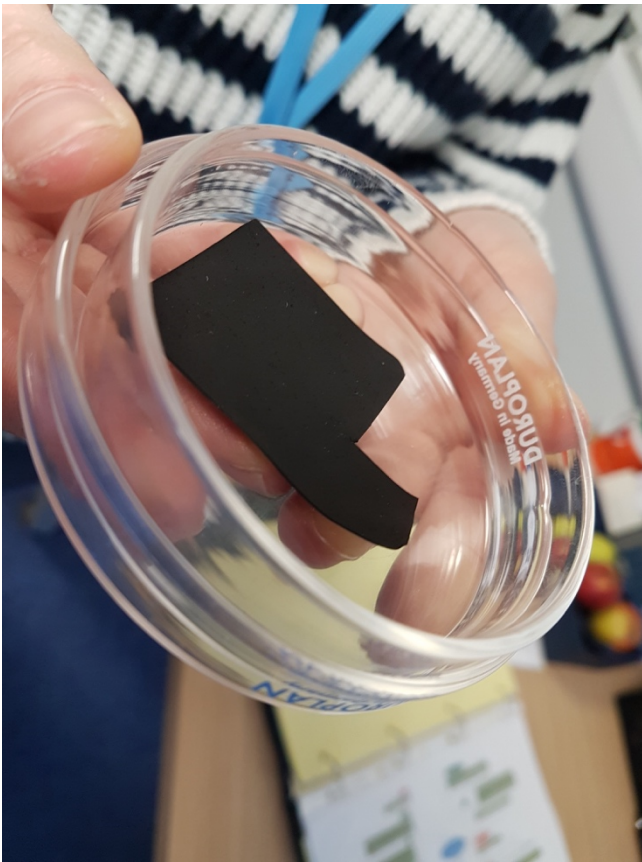


## Gen 3 : CAN BE USED IN COMBINATION WITH LI-ION



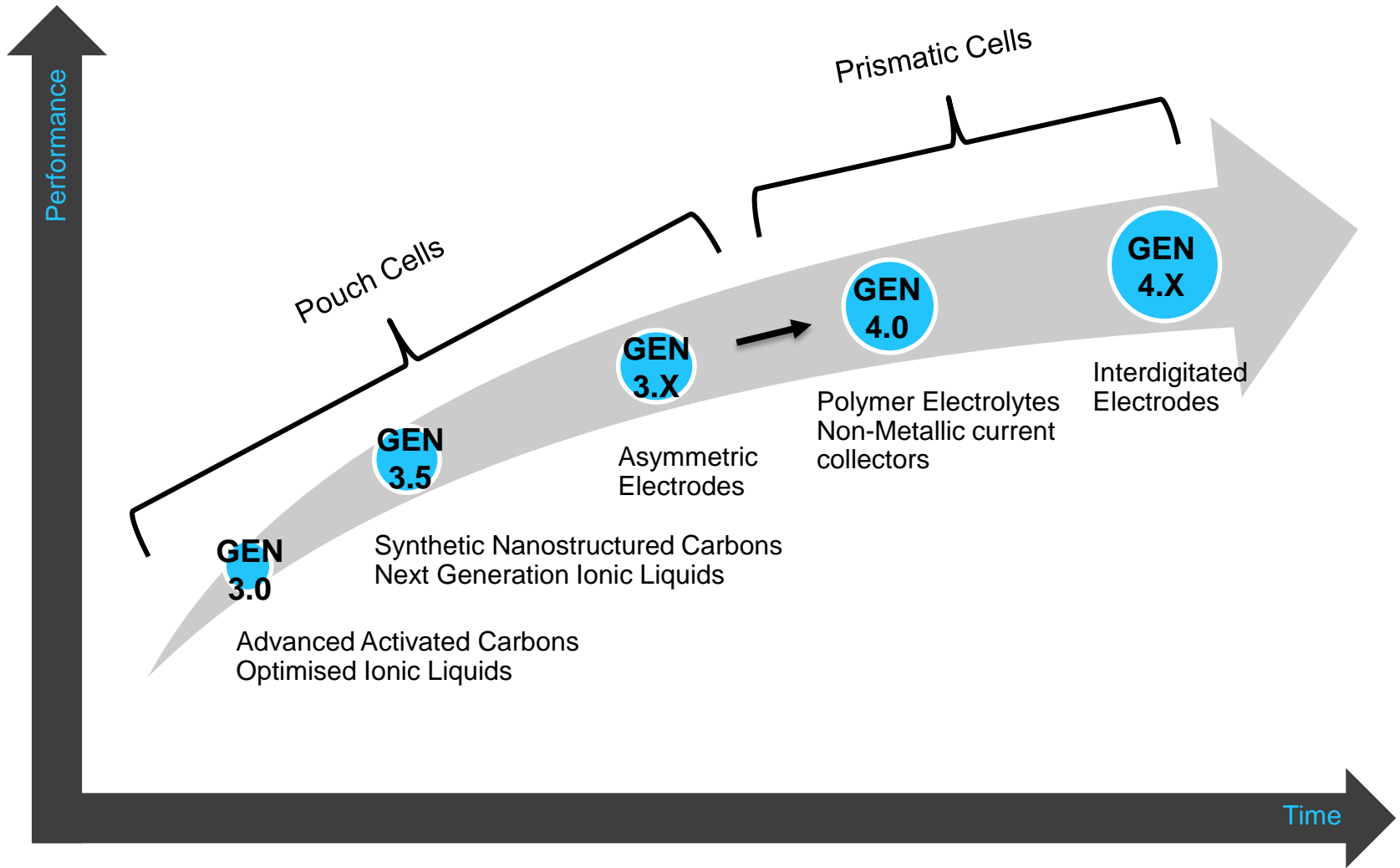


## NANO CARBON ELECTRODES &amp; HIGH VOLTAGE IONIC



Gen 4: Non-metallic electrodes means voltage raised to 4.0V. Viable alternative to lithium-ion in certain consumer products. Easier to ship than lithium-ion, safer, faster charging, recyclable..

PROGRESSIVE TECHNOLOGY ROADMAP





## 'PROJECT HOME' – MAKE-LIKE PRODUCTION FACILITY

- To be housed on Genesis site at Harwell (where Li-ion technology was born)
- World leading R&D facility and dry-room custom designed for Carbon-Ion production using advanced nano carbons and high voltage ionic electrolytes
- Fully equipped for development and pilot production of future generations of technology, Gen 4, Gen 5 and beyond
- Quality Assurance laboratories



[Click to play video fly-through of Zap&Go pilot production and R&D facility](#)

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- ✓ Recyclable



## CONTACT DETAILS

**Charles Resnick** – *President US Operations*

Charles has 30 years of global management experience in financial, technical and consumer corporations. He was founder and Managing Partner of Inflexion, an early-stage VC fund, and has been involved in over 100 M&A deals. Under the Bush and Clinton administrations he assisted the President in negotiating with G-7 Finance Ministers.

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## BOARD OF DIRECTORS

**Stephen Voller** – *Founder & CEO*

Stephen is an experienced business leader and a recognised authority on energy storage technologies. He is the inventor of Carbon-Ion and he founded ZapGo in 2013 to produce the next generation of energy storage devices based on this technology platform, with four core values: to be faster charging, safer, longer lasting and more recyclable than lithium batteries. Stephen has taken several technology businesses through concept, design and then into production. He launched the first ever CE-marked hydrogen fuel cell product, and was co-founder of the hydrogen storage company, Cella Energy. He previously ran a \$1bn business unit at IBM. He is a member of the Institute of Electrical and Electronic Engineers (IEEE).

**Tim Walder** – *CFO*

An experienced CFO with an Electric Vehicle, National ID and Secure Smart Card background, Tim has worked as managing director or finance director with innovative engineering and manufacturing businesses helping to improve their productivity and performance. In addition to financial management he leads on the specification, design and build of our manufacturing facility at Harwell.

**Simon Harris** – *President Asia Pacific & Marketing Director*

Simon joined the Board in April 2015 from corporate finance house Envestors, where he raised many millions in equity, loans and grants for high-tech companies. He also is leading Zap&Go's drive into China and the Asia-Pacific region. His former career was in international advertising with Saatchi & Saatchi.

**David McTurk** – *COO*

An electronics engineer by training, David has particular experience of high technology procurement and manufacturing in North America and Asia Pacific. He was previously COO of photonics pioneer Bookham Technology (now Oclaro Inc.), and has held Board positions with a number of high technology development and manufacturing businesses, with experience ranging from start-ups to an LSE / NASDAQ flotation.

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**David Welch PhD** – *Non-Executive Director*

Dr Welch co-founded Infinera (NASDAQ:INFN) in 2010 and has served as President since June 2013. Previously, he served as Chief Technology Officer of the Transmission Division of JDS Uniphase Corporation, an optical component company and Chief Technology Officer and Vice President of Corporate Development of SDL, an optical component company. Dave currently serves on the board of directors of AntriaBio, Inc., a biopharmaceutical company. Dave holds a B.S. in Electrical Engineering from the University of Delaware and a Ph.D. in Electrical Engineering from Cornell University.

**Dr Edward G. Tiedemann, Jr.** – *Non-Executive Director*

Ed is Sr. Vice President, Engineering of Qualcomm Technologies, Inc. and is Qualcomm Fellow. He has been with Qualcomm for over 28 years. Ed was responsible for starting Qualcomm's involvement in standards and industry organizations, and leading that aspect of Qualcomm since its beginnings in the early 1990s. Ed holds many patents related to cellular communications technology. Previously he was a Member of the Technical Staff of MIT Lincoln Laboratory. He holds a PhD from MIT (Massachusetts Institute of Technology) in Electrical Engineering and Computer Science. He sits on the boards of the Open Connectivity Foundation and the Open Mobile Alliance. He is also on the Board of Overseers of the Peabody Essex Museum.