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PhD Innovation Programs

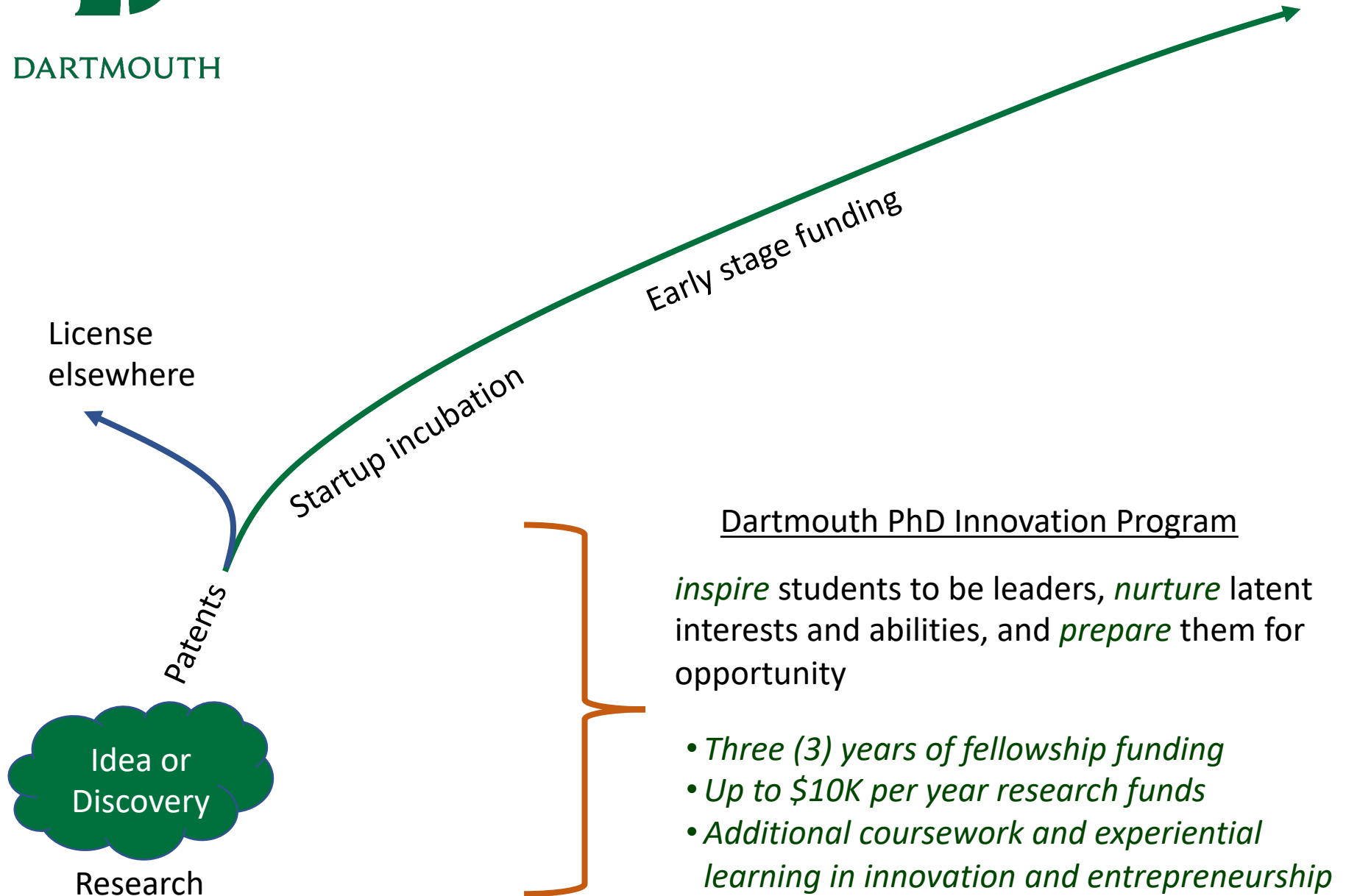
Prof. Eric Fossum, Director

Thayer PhD Innovation Program
Guarini PhD Innovation Program



Early arc of technology innovation

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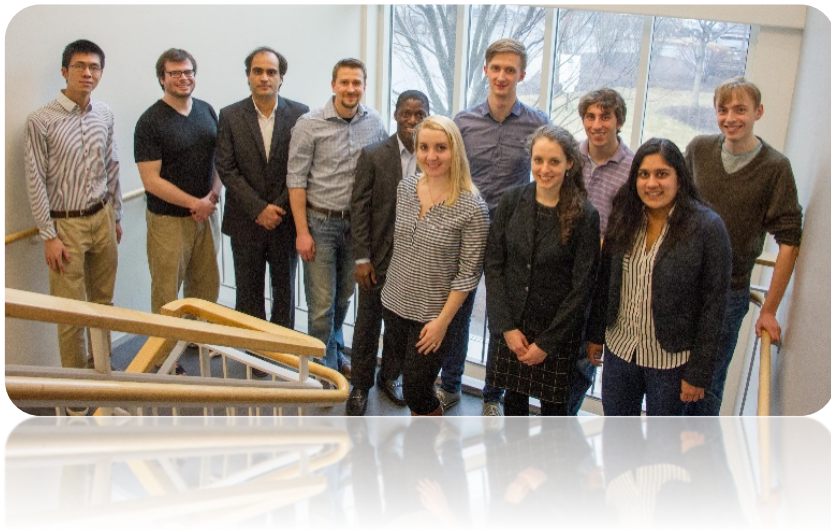




PhD Innovation Program

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- Regular research PhD program *plus* entrepreneurial training
- Thayer PhD Innovation Program launched by Helble, Collier, Hutchinson in 2008. Fossum joins Dartmouth as Director in 2010.
- Expanded to Guarini PhD Innovation Program in 2019 by Jon Kull.
- Innovation Program Fellows supported by school funds starting in year 2 of PhD program for up to 3 years FTE. Includes up to \$10K/yr for research expenses for up to 3 years.



National Academy of Engineering 2014 Gordon Prize

“For creating an integrated program in engineering innovation from undergraduate through doctorate to prepare students for engineering leadership”

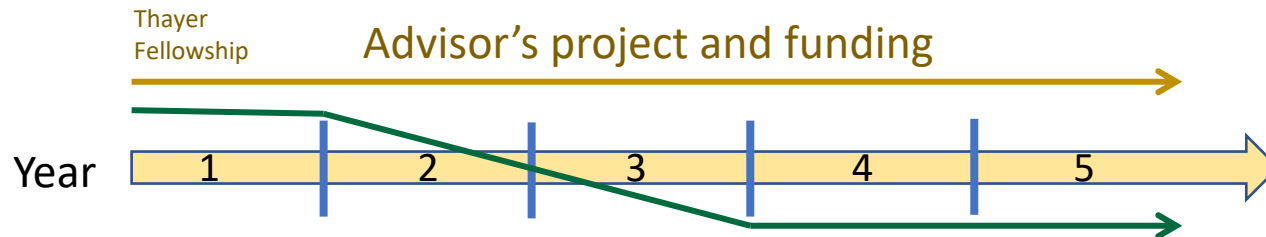


Curriculum and Funding Comparison (Thayer Program)

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COURSE REQUIREMENTS														
REGULAR PHD PROGRAM							PHD INNOVATION PROGRAM							updated Nov 10, 2019
Regular Courses (8-10 total, 6 first year)														rec. yr
(1)	Graduate technical course	Technical Depth							Graduate technical course	Technical Depth				1st
(2)	Graduate technical course								Graduate technical course					1st
(3)	Graduate technical course								Graduate technical course					1st
(4)	Graduate technical course								Graduate technical course					1st
(5)	Applied math Elective	Math Proficiency							Applied math Elective	Math Proficiency				1st
(6)	Applied math Elective								Applied math Elective					1st
(7)	Graduate technical course	Engineering Science Breadth							Graduate technical course (Breadth) or ENGM 179 accounting					
(8)	Graduate technical course						ENGM 187	Tech. Innov. and E-ship	Innovation				2nd yr	
(9)	Graduate technical course (depends on advisor)						ENGM 180	Corporate Finance					3rd yr	
(10)	Graduate technical course (depends on advisor)						ENGM 188	Law for Technology and Entrepreneurship					3rd yr	
							ENGG 321	Adv. Innovation and Entrepreneurship					4th yr	
							ENGG 300	Internship (Typ. 3-6 months)				summer after yr 3		
							TPSI only	Surgical Innovation Rotation and Training						2nd yr

Regular PhD:



IP Fellows:

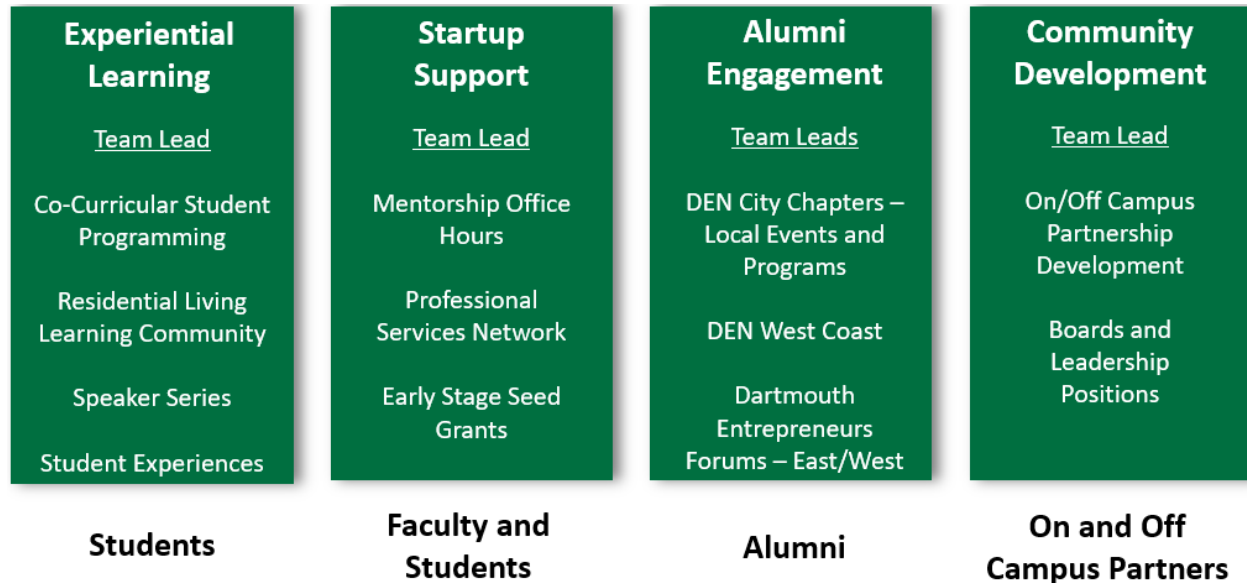
50% IP Fellowship
2 cross-over years

100% IP Fellowship up to 2 years
Up to \$10K/yr for research starting year 3



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Magnuson Center for Entrepreneurship as additional resource



Dartmouth Applied Learning and Innovation (DALI) Lab

- Design and develop for mobile, web, VR/ AR,
- games, interactive media, data viz, product design, and much more
- Experiential Learning and Professional Development
- Paid extra-curricular internship opportunity
- Work in teams of designers, coders, engineers, and a project manager





Stats thus far (Thayer)

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- Maximum 5-7 students admitted each year. Tend to be highly qualified PhD students.
 - 15% of PhD program
- Admitted students come from outside Dartmouth and inside Thayer regular PhD program (about 50/50).
- As of November 2019, 25 graduates
 - 8 women (32%), 7 foreign
 - 10 founded startups, 14 total involved w/ startups
- Currently 26 students in program
 - 11 women (42%), 6 foreign
 - 2 active startups
- Active engagement with Tuck E-ship programs/students
- Relationship with DEN/Magnuson (incl. I-Corps) growing stronger

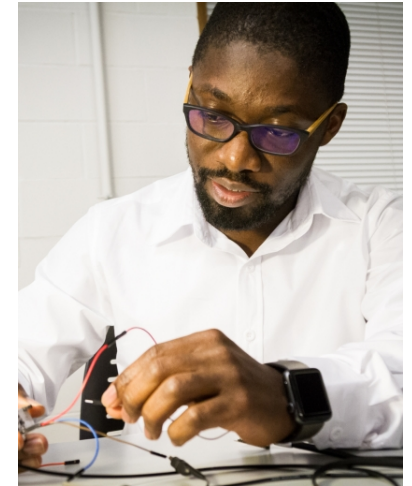


PhD Innovation Program student startups

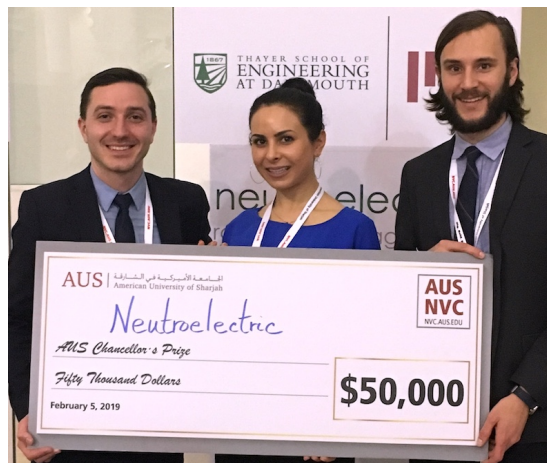
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Clairways
(top prize winner Magnuson Center
startup competition \$52,500)



BBR Medical



Neutroelectric
(top prize winner international
startup competition Abu Dhabi \$50,000)





PhD Innovation Program Internships (incl. student startups)

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Amazon

Sproxil

Mobile Med International

Microsoft

SustainX

Domain Surgical

Intel

Transient Electronics

Avitide

Apple

BBR Medical

Invenshure

Analog Devices

Questek

Ameliomed

RSG

Applied Materials

Creare

Gigajot



Some Current Innovation Program Fellows

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