EVOLVE

Mentoring Masterclass

Ilaria Testa

Navigating interdisciplinary career paths and hints into SMART microscopy

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Class Guide:
Navigating interdisciplinary Career Paths and hints into SMART microscopy

Ilaria Testa
Professor in Applied Physics, leading groundbreaking research at SciLifeLab and the Unit of Biophysics, KTH Royal Institute of Technology. Her team operates where physics, chemistry, and neuroscience collide, developing next-generation imaging technologies that redefine how we explore the microscopic world.

A pioneer in super-resolution microscopy, she has spearheaded game-changing innovations in event-triggered microscopy and SMART microscopy. These breakthroughs are revolutionizing live-cell imaging, allowing us to capture the most elusive molecular processes with unprecedented precision.

In this class, she pulls back the curtain on her interdisciplinary journey, sharing the highs, the hurdles, and the insights gained from working at the crossroads of multiple scientific fields. Whether you're a budding researcher or a seasoned scientist, her story will ***inspire you to break barriers, embrace collaboration, and push the limits of what's possible in science.***

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The Journey: From Physics to Biology

Ilaria Testa's career path proves that **science isn't a one-way street**. Starting with a physics background, she found her passion in answering biological questions—showing how interdisciplinary approaches fuel innovation. She also credits mentorship, including working with Nobel Laureate Stefan Hell, as a key driver of her success.

Lessons Learned

- "There are many ways to do science—find your own path."
- Mentors matter, don't be afraid to reach out for help and feedback!
- Balance what feels comfortable with pushing into new, innovative territories.
- When in doubt, seek advice from peers and mentors—trust those who know you.

Building an A-Team in Science

Hiring and leading a research team isn't just about technical skills—it's about mindset, collaboration, and passion for the work. Ilaria also shared what she looks for when bringing people into her lab.

What Makes a Great Researcher?

- Project-specific expertise: Skills tailored to the research at hand.
- A deep fascination with the topic: Genuine curiosity goes a long way.
- The right skillset:
  - Technical know-how is just one part of the equation.
  - Awareness of biases when hiring and evaluating talent.
  - Willingness to give and receive constructive feedback.
  - Taking ownership of results and engaging in self-reflection.
  - Patience and resilience—because science is a marathon, not a sprint.
  - Strong experimental and problem-solving skills.

Super-Resolution Microscopy: Seeing Beyond Limits

Ilaria and her team are at the forefront of super-resolution fluorescence microscopy, pushing the boundaries of what we can see at the nanoscale. Her groundbreaking work with techniques like STED and RESOLFT is transforming our ability to study live cells, revealing the hidden world of protein interactions and cellular architecture with unprecedented detail.

Key Takeaways

- Breaking the diffraction limit opens new frontiers in biological research.
- Revolutionary nanoscopy techniques like MoNaLISA, Smart RESOLFT, and adaptive STED provide deeper insights into protein dynamics.

Want to learn more?

Watch **Ilaria Testa's TED Talk**, on "event-triggered microscopy," where she explores how smart microscopes can make real-time decisions opening new frontiers in biological observation and transforming our understanding of life.

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The Science Mindset: How to Stand Out

Success in science isn't just about being smart—**it's about being proactive, resilient, and open to learning.**

Her advice? Put yourself out there.

Pro Tips for Scientists

- Be proactive: Don't wait for opportunities—create them.
- Knock on doors, be bold: The worst they can say is no.
- It gets easier over time: Confidence and skill grow with experience.

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Final Thoughts

Ilaria Testa's EVOLVE Mentoring Masterclass was more than a quick dive into microscopy—it was a roadmap for thriving in science.

From cutting-edge imaging techniques to navigating career crossroads, her insights show that **curiosity, resilience, and teamwork are the real superpowers in research.**

Whether you're just starting out or already deep into imaging science, this session offered a reminder: the best discoveries come to those who are willing to explore, innovate, and never stop asking questions!

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