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Women Nobel Laureates in STEM (2000–2023): *Life Stories, Challenges, and How They Achieved Impact for Success*

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GSMA AWARD 2026

Submitted in support of the **GSMA Asia Pacific Women Digital Leadership Award 2026**, theme: **"Women, Trust, and the New AI Reality."** This research sits at the intersection of gender equity in STEM, ethical leadership, and the inclusive innovation that trustworthy AI demands — directly embodying the values the award recognises.

RESEARCH OVERVIEW

Women are significantly underrepresented in STEM — only 26 women have won a Nobel Prize in physics, chemistry, or medicine compared to 617 men since 1901. This underrepresentation is not only a matter of social equity; it actively limits the diversity of thought in the technology systems that increasingly shape our world. This thesis addresses a gap in existing scholarship: while many studies document the *existence* of barriers women face in STEM, far fewer explore how the most successful women have *overcome* those barriers and what enabled them to achieve transformative impact.

The study examined the 11 women who won the Nobel Prize in Physics, Chemistry, or Medicine/Physiology after the year 2000 — a deliberate choice to focus on an era defined by the rise of the internet, high-tech industries, and artificial intelligence. Drawing on their biographies, published interviews, life stories, and newspaper accounts, the researcher conducted a rigorous six-phase thematic analysis to identify the patterns behind their success.

FOUR RESEARCH THEMES

01
OVERCOME BARRIERS

Persistence and resilience in the face of gender bias, stereotypes, childcare pressures, and systemic exclusion.

02
QUALITIES OF A LEADER

Curiosity, lifelong learning, deep passion, and a relentless drive to surpass their own previous achievements.

03
SUPPORTIVE SYSTEMS

Family, mentors, sponsors, and inclusive institutional culture as structural enablers — not optional extras.

04
IMPACTFUL & INNOVATIVE

Humanity-driven, ethical purpose as the animating force behind their scientific breakthroughs.

KEY FINDINGS

- **Intrinsic motivation is the common denominator.** Every laureate was driven by curiosity and passion for their work — not by prizes, recognition, or external reward. Many continued active research well into their 70s and 80s.
- **Gender bias is structural, not incidental.** All 11 laureates encountered gender stereotypes and institutional biases. Their success came not from ignoring these barriers but from developing extraordinary resilience in spite of them — a resilience that required sustained personal effort and systemic support.
- **Support systems are decisive.** Early parental encouragement, a supportive academic mentor, or a sponsor who championed their work often made the critical difference at inflection points in their careers.
- **Purpose beyond self drives breakthrough impact.** The laureates shared a commitment to science as a contribution to humanity — an ethical orientation that shaped not only their motivation but the direction of their discoveries.
- **Success is triadic.** The research adapts Bandura's Triadic Reciprocal Model to STEM leadership: personal qualities, behaviour, and environment interact dynamically. No single factor is sufficient; all three must be actively cultivated.

> *"If you want to be a woman strongly involved in science, be very persistent. There will be obstacles. But if you are convinced it is really what you want to do — be very enthusiastic, very determined, and you will be a winner."*
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> — FRANÇOISE BARRÉ-SINOUSSI, NOBEL LAUREATE IN MEDICINE (HIV DISCOVERY), QUOTED IN THESIS

CONNECTION TO AI, DIGITAL TRUST & THE AWARD THEME

The GSMA 2026 award theme — "Women, Trust, and the New AI Reality" — asks who is shaping responsible and inclusive technology. This thesis offers a direct answer. The research shows that the leadership qualities enabling women to succeed in STEM —

inclusive thinking, ethical purpose, collaboration, and humanity-centred motivation — are precisely the qualities needed to make AI systems trustworthy. **Women's participation in STEM is not a diversity metric; it is a quality and trust mechanism.**

The author brings this argument to life through a 20+ year career at the frontier of digital transformation and AI adoption across Asia, bridging academic insight with real-world technology leadership in multinational environments. The convergence of this research and that professional experience reflects a unified conviction: when women shape technology, it becomes more human-centred, more inclusive, and more deserving of public trust.

ABOUT THE AUTHOR

Daisy Wu is a senior digital and technology leader with over 20 years of experience driving enterprise transformation across Greater China and Asia for Fortune 500 organisations. She is an award-winning practitioner in AI adoption, digital strategy, and technology governance, recognised by the Global Diversity in Tech Awards and the Asia Women in IT Awards. She completed her Master of Science in Engineering & Management at MIT (System Design & Management Program) as a Chevron-sponsored Digital Scholar, graduating in 2024 with a GPA of 5.0. This thesis was her capstone research, combining her professional experience as a woman in technology leadership with academic rigour to generate insights for the next generation of women in STEM.

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