INGRID DAUBECHIES: A PASSION FOR MATHS

by **Cristina Serra**

The beauty of maths, says the influential scholar, is its power to solve problems. She uses it to analyse art, to build the strength of developing nations – and to open doors for women.

Even when she was a young girl in Belgium, it was clear that Ingrid Daubechies had a special talent for maths. Before the age of 6, she was already familiar with complex mathematical concepts, and when she couldn't sleep she did not count numbers as others do, but instead mentally computed powers of 2.

Today, she uses maths in fields that would seem a world away from numbers and equations: She creates mathematical algorithms and applies them to spot art forgeries, or to analyse painting cracks and relieve professional art renovators from a tedious part of their work.

But in her just-completed term as president of the International Mathematical Union, it was a priority to build global mathematics networks that included developing nations. And her work served as a powerful counterargument to the too-common assumption that when it comes to maths, women are less skilled than men.

"I disagree with this view *completely*", she said in a recent interview. "There is a highly variable percentage of women in academia and in departments of mathematics across Europe. Differences are so enormous that it becomes obvious that it has something to do with cultural habits, which differ from one nation to another, and not with intelligence."

Daubechies is a professor at Duke University in North Carolina (USA). During her scientific career she worked at Vrije University in Belgium, and in the United States at Rutgers and Princeton universities. She earned an international reputation for her discoveries in the field of wavelets, the mathematical functions used in digital signal processing and image compression, and in other branches of applied and pure mathematics.

She visited Trieste in 2014, during the 2 to 21 June joint ICTP-TWAS *School on Coherent State Transforms, Time-Frequency and Time-Scale Analysis, Applications,* for which she also served as co-director. Speaking of TWAS, she praised the Academy's work for developing countries, especially with its fellowships programmes.

Daubechies was the first woman to be appointed as the IMU president. Her nomination for the post, she said, reflected her commitment for building networks.

"Many mathematicians believe mathematical talent is distributed more or less uniformly around the globe," she explained, "and the IMU cares about education in developing countries. This is not just about spotting extremely rare top geniuses, but also about fostering the growth of strong, healthy maths communities that interact productively with the whole mathematics world. Raising awareness about and trying to remediate the scarce number of women in mathematics is, to me, part of that whole package."

In her view, maths is highly important for developing countries. "It has a great appeal because it is so neat", she said. "You literally solve problems and build approaches by just the power of thought." ◘

Read the full interview with Ingrid Daubechies: www.twas.org/node/6420/

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