Learning Numerical Methods for PDEs from the Web

http://pde.fusion.kth.se

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Course shared between universities (1997-)

- 3 weeks introduction applied math & engineering
- 16 under-/graduates from Stockholm & Göteborg
- problem based learning with numerical experiments
- changed teaching → learning centered approach

Students from abroad via the Web (2000-)

- life-long learning for individuals and professionals
- flexible working scheme (anytime, anywhere)

Join this summer's course (Aug-Sep, 2001)

- invited lecturers video-conferenced abroad
- ETH Lausanne, MIT Cambridge, your university?

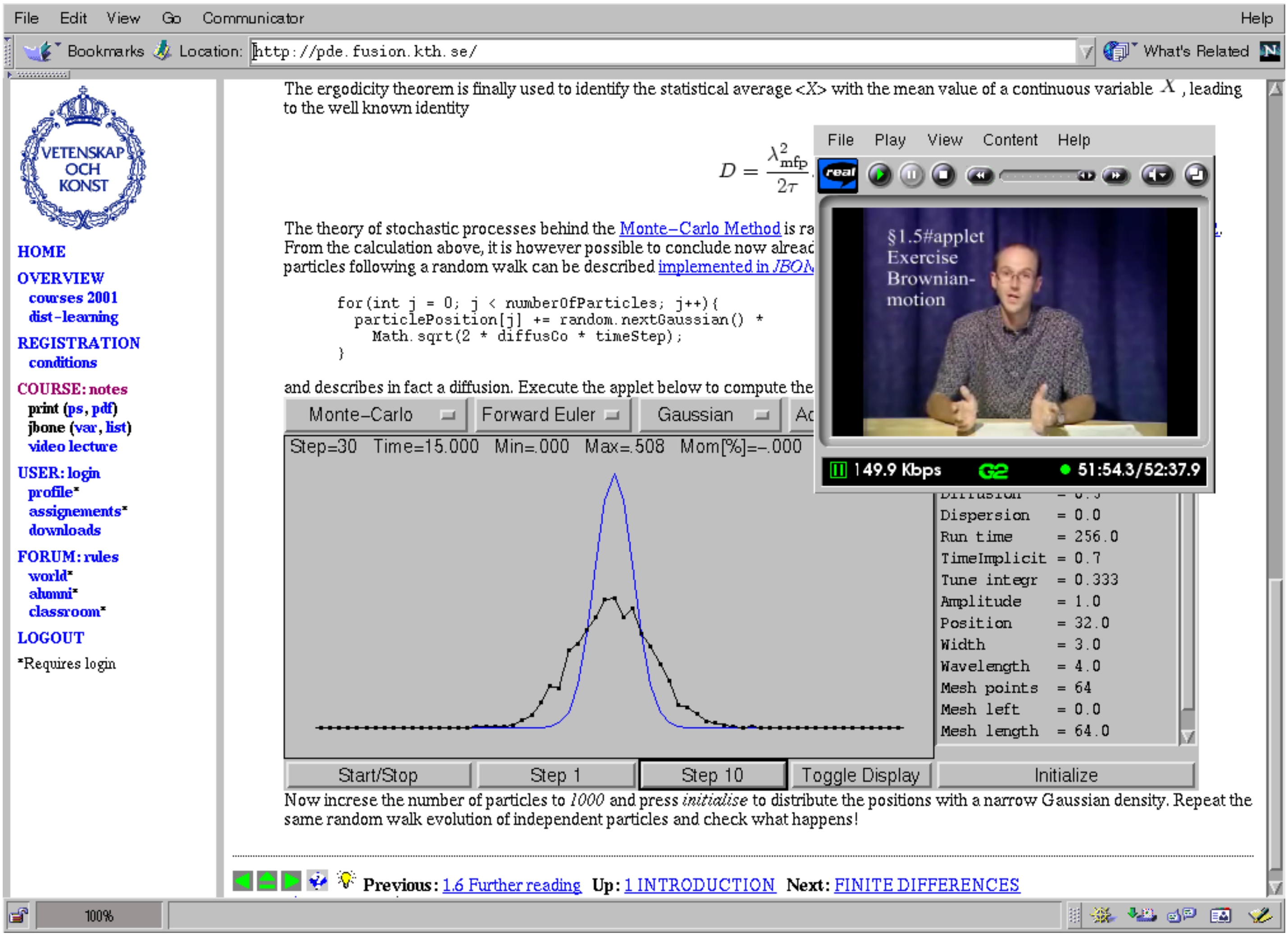
Teaching: a Learning Centered Approach

Passive: course notes & RealVideo recordings

- re-play, pause and skip the lessons on the Web
- conventional reading, watching & listening

Active: experiments test your understanding

- edit the parameters in a Java-powered document
- exploit animation and interactivity



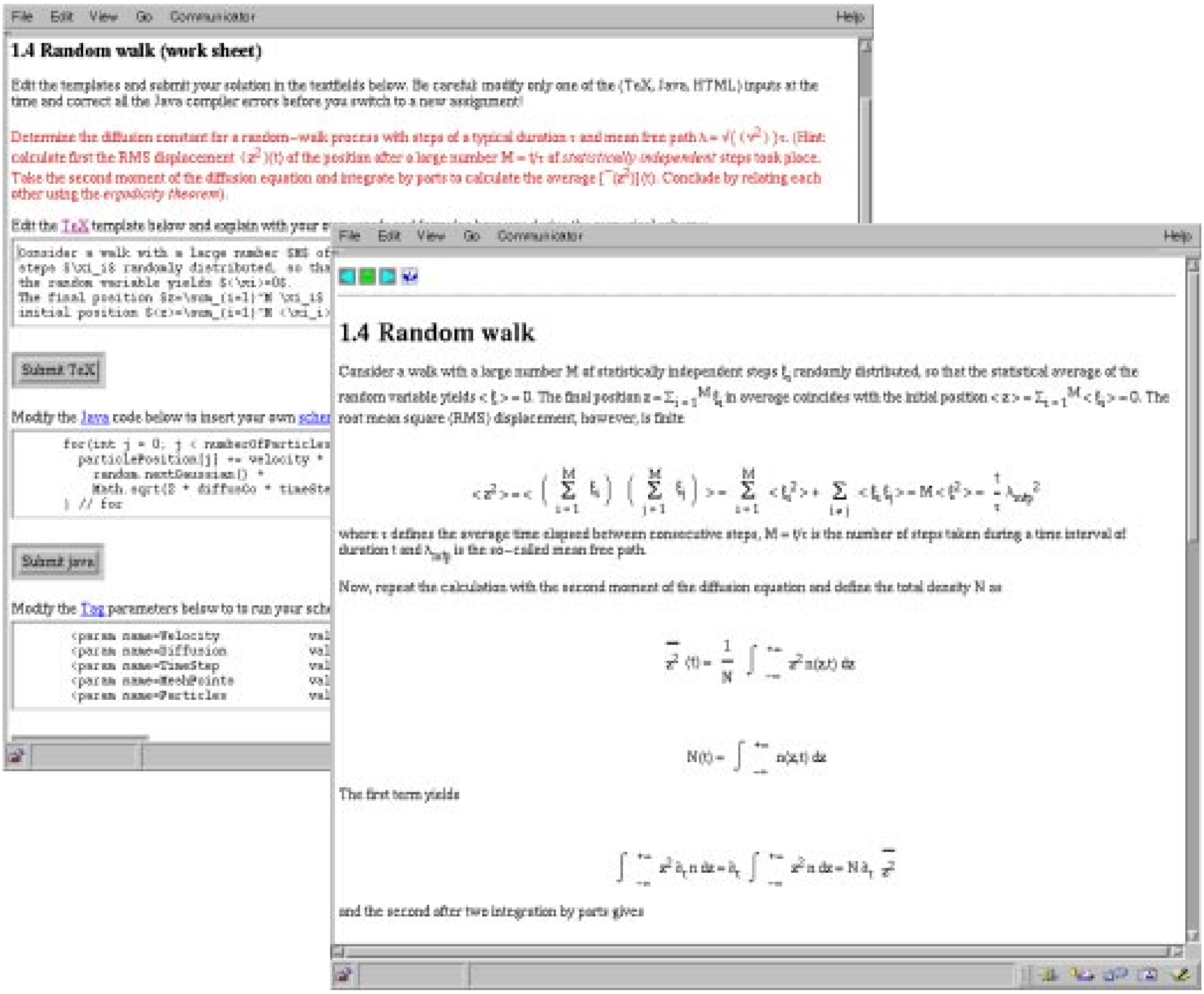
Topics include for example:

- diffusion, Schrödinger, Black-Scholes, Burger, KdV
- finite-differences/-elements, Fourier, Monte-Carlo

Assignments, Corrections and Support

Work out and submit exercises electronically:

- equations (TEX) & programs (Java) automatically compiled and displayed in a regular Web browser
- technology acquired in less than 2h with templates



Forum discussions and correction by humans:

- quick answers 24h/day, advice usually competent
- explain concepts in the students' own language
- corrections from a pool of teachers abroad

Experience and Conclusion

Video-conference and technology:

- changed lecture → Q&A, quiz, illustrations
- organized discussion peers → classrooms → teacher

- open source / free software (Java, PHP, SQL)

Evaluation:

- students love it and acquire a working knowledge
- broaden the horizon in a multi-cultural experience
- technology is enhancing the human interaction!

Join our international teams:

- as student, teacher (local respondant) or school