THE ALGORITHMIC BEAUTY OF NATURE: COMPUTER GRAPHICS MODELS OF PLANTS AND SEASHELLS

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Recent advances of computer graphics have made it possible to visualize mathematical models of biological structures and processes using different styles of presentation, from schematic to realistic to surrealistic. My presentation will focus on the models of flowering plants and seashells. Their forms and pigmentation patterns can be captured using elegant formalisms of mathematical biology: L-systems and reaction-diffusion processes. In addition, the self-similarity of branching plant structures relates them to fractals.