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# For Your Information

## Morgan Appointed Director of Simons Center at Stony Brook

John Morgan of Columbia University has been appointed director of the Simons Center for Geometry and Physics at the State University of New York, Stony Brook. He received his Ph.D. in mathematics from Rice University in 1969. He has held postdoctoral and junior positions at Princeton University and the Massachusetts Institute of Technology and spent two years at the Institut des Hautes Études Scientifiques before joining the Columbia faculty in 1976. He chaired the mathematics department at Columbia from 1986 to 1988 and again from 2004 to 2008. He has been acting director of the Simons Center for the past year. His research interests lie at the interface of topology, geometry, algebraic geometry, and mathematical physics. He is a member of the National Academy of Sciences and the European Academy of Sciences and is an editor of the *Journal of the American Mathematical Society*. The Simons Center for Geometry and Physics was founded in 2007 with a gift from the James and Marilyn Simons Foundation.

Morgan said, “The past thirty-five years have seen a remarkable turn in the relationship of mathematics and physics, starting with the realization by C. N. Yang and Simons that each discipline was studying the same objects (connections on principal bundles or gauge theory) from its own perspective and for its own needs. This realization sparked the beginning of a serious attempt by both communities to bridge the gap between the subjects. From the mathematical perspective, a fundamental question is: What is the source and nature of the nonmathematically rigorous approach that has inspired so much of the recent activity in geometry, topology, and algebra, with questions and conjectures unlike anything that has been seen before? Examples of mathematics arising out of this interplay are Floer homology, Donaldson theory, Seiberg-Witten theory, mirror symmetry, Gromov-Witten theory, chiral algebras, the quantum field theory approach to the

geometric Langlands program, a mathematically coherent treatment of perturbation theory and Feynmann diagrams, and the recent mathematical explanation of topological quantum field theories. From the physics perspective, the question is the flip side of this coin: What is the mathematical justification underlying, and what exactly are the rules of and the limits to, the art of quantization and string theory? Although there have been many examples of advances on these questions, the coherent picture of the relationship between the mathematics and physics involved remains a central mystery in both subjects.

“The goal of the Simons Center is to study this mystery from both sides of the divide. Its aim is to bring together mathematicians and physicists whose work, ideas, and questions can stimulate activity across the divide and/or take advantage of advances from the other side of the divide.”

The center will bring together first-rate researchers with an interest in and a sympathy toward the other discipline, and out of this mix will come advances in both subjects. There are many places at which first-rate mathematics is done and many places at which first-rate physics is done, and in some instances communication exists across the barrier of the disciplines. “The Simons Center will be, I believe, the unique place where this communication and the resulting cross-fertilization will be central factors determining the choice of personnel for the center and the choice of topics of special concentration at the center,” said Morgan.

The center’s new building, due to be completed in September 2010, will house approximately thirty-five to forty researchers at any given time. The center is expected to have, besides the director, a faculty consisting of six permanent members, twelve postdoctoral research assistant professors for three-year periods, and approximately eighteen to twenty visitors in residence. In addition, week-long workshops will be held during the academic year, and a month-long summer school in physics is planned.

—Elaine Kehoe