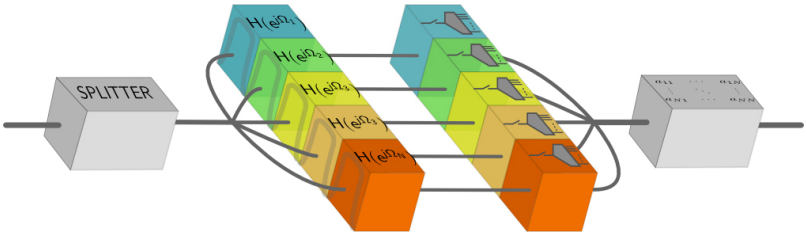
# NSF Backs Broadband Signal Research



The National Science Foundation has awarded a $540,000 collaborative research grant to Peter Kinget (http://www.ee.columbia.edu/fac-bios/kinget/faculty.html), an associate professor in the Department of Electrical Engineering (http://www.ee.columbia.edu/index.html), and to University of Texas Professor Ranjit Gharpurey. The research aims to develop broadband analog-to-digital converters. Kinget says their work has the potential to meet a critical need for technology advances in multiple areas with broad societal and scientific impact including computing, communications, sensors, medicine, and fundamental science.

"All signals in the real world are analog in nature, i.e. they exist over a continuous range of values and in continuous time," he says. "As the digital capabilities have increased, the requirements on the signal digitizers (a.k.a. analog-to-digital converters) has grown significantly. The design of high performance signal digitizers is a key challenge to enable progress in other fields. Our research aims to develop broadband analog-to-digital converters using novel iterative filter bank architectures to overcome the limitations of traditional time-domain samplers."




Such innovation could fill a crucial technology need in many fields, as an ever expanding range of applications have moved to digital.

"Digital bits can be stored efficiently on disks or in nonvolatile memories and digital signal processing and control has opened up a wide variety of new opportunities," Kinget says. "The relentless progress in the scaling of semiconductor CMOS technologies towards the use of nanoscale devices, has brought an exponential increase in the storage density and the processing power of digital processing."

More details of Kinget's research can be found at the Kinget Group (http://www.cisl.columbia.edu/kinget_group/).



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