Let the games begin! Nanosoccer at 2009 RoboCup in Austria

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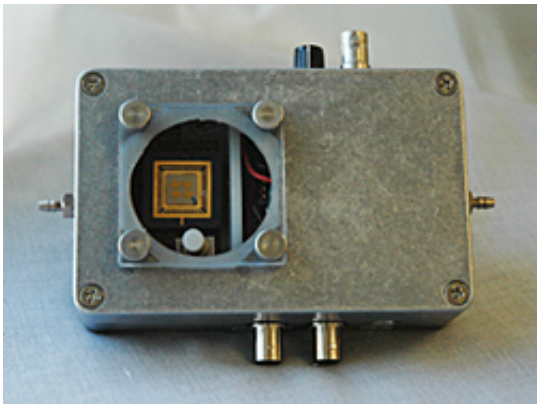

The 2009 RoboCup Nanosoccer competition will be played on the gold-colored microchip seen through the window of the “world's smallest soccer stadium.” The chip is divided into 16 playing fields each the size of a grain of rice. Credit: Talbott, NIST

(PhysOrg.com) -- The World Cup may be two years away, but soccer aficionados can get an early start at satisfying their yen for global competition when the National Institute of Standards and Technology and the RoboCup Federation host the second-ever international nanosoccer contest next summer.

Nanosoccer—the Lilliputian competition where computer-driven "nanobots" the size of dust mites challenge one another on fields no bigger than a grain of rice—will be part of the RoboCup games in Graz,

Austria, from June 29-July 5, 2009. NIST is now accepting applications for organizations wishing to field robots in the events.

Viewed under a microscope, the soccer nanobots are operated by remote control and move in response to changing magnetic fields or electrical signals transmitted across the microchip arena. "Nanoscale" refers to their mass. The bots are a few tens of micrometers to a few hundred micrometers long, but their masses range from only a few nanograms to a few hundred nanograms. They are manufactured from materials such as aluminum, nickel, gold, silicon and chromium.

Rules for the "Nanogram 2009" competition and the application form (called the "Team Description Paper") are available at www.nist.gov/public_affairs/calmed/nanosoccer.html. The "NIST and Nanosoccer" Web site also features detailed information on nanosoccer, summaries of past competitions and a short video showing how the contests "road test" agility, maneuverability, response to computer control and the ability to move objects—all skills that future industrial nanobots will need for tasks such as microsurgery within the human body or the manufacture of tiny components for microscopic electronic devices.

NIST is jointly organizing the Nanogram 2009 events with RoboCup, an international organization dedicated to fostering innovations and advances in artificial intelligence and intelligent robotics by using the game of soccer as a testing ground. NIST's goal in coordinating competitions between the world's smallest robots is to show the feasibility and accessibility of technologies for fabricating MicroElectroMechanical Systems (MEMS), tiny mechanical devices built onto semiconductor chips and measured in micrometers (millionth of a meter). The contests also drive innovation in this new field of robotics by inspiring young scientists and engineers to become involved.

Teams wishing to compete in Austria must submit their application materials by Dec. 31, 2008, by either e-mail to nanogram_at_nist.gov or by regular mail to RoboCup Nanogram 2009, c/o Craig McGray, NIST, 100 Bureau Dr., MS 8120, Gaithersburg, Md. 20899-8120.

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