## Abstract Submitted for the MAR08 Meeting of The American Physical Society

Evolution of Integer Quantized Conductance in Gold Nnowires YOSHIHIKO KURUI, Dept. Cond. Matt. Physics, Tokyo Institute of Technology, YOSHIFUMI OSHIMA, Dept. Materials Science & Engineering, Tokyo Institute of Technology; CREST, Japan Science and Technology Corporation, MASAKUNI OKAMOTO, Mechanical Engineering Research Laboratory, KUNIO TAKAYANAGI, Dept. Cond. Matt. Physics, Tokyo Institute of Technology; CREST, Japan Science and Technology Corporation — Conductance of gold junction was measured during many breaking procedures, while simultaneously acquiring transmission electron microscope images. The conductance histogram exhibits the quantized peaks in the vicinity of  $G_0(=2e^2/h$ : conductance quantum),  $2G_0$ ,  $3G_0$ , and  $4G_0$ . From the TEM images, we found that these values correspond to single, double, triple and quadric atomic strands, respectively. With the exception of the quadric strand, these strands were arranged in a planar sheet with a ladder or zigzag configuration that respectively resembled the (001) and (111) lattice planes of the gold crystal.

Yoshihiko Kurui Dept. Cond. Matt. Physics, Tokyo Institute of Technology

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