

Supporting Information.

Received 00th January 20xx,
Accepted 00th January 20xx

DOI: 10.1039/x0xx00000x

www.rsc.org/

Single Quantum Dot Rectifying Diode With Tunable Threshold Voltage

Gopal Sankar,[‡]Piyali Maity,[¶]Yogesh Kumar,[‡] Hemant Kumar,[‡]Vinod K Gangwar,[€]Sandip Chatterjee,[€]SatyabrataJit,[‡]Anup K Ghosh,[¶] and Bhola N. Pal^{‡*}

[‡]School of Material Science and Technology, [‡]Department of Electronics Engineering, [€]Department of Physics, Indian Institute of Technology (Banaras Hindu University), Varanasi-221005, India

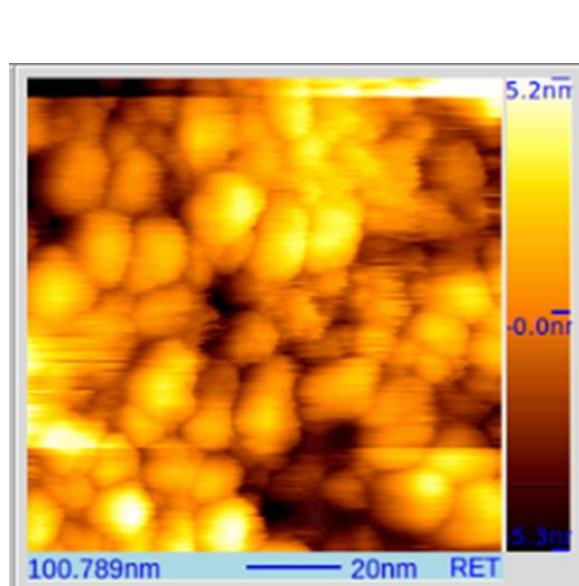


Figure S1. STM microgram for ZnO surface with a device structure ITO/ZnO

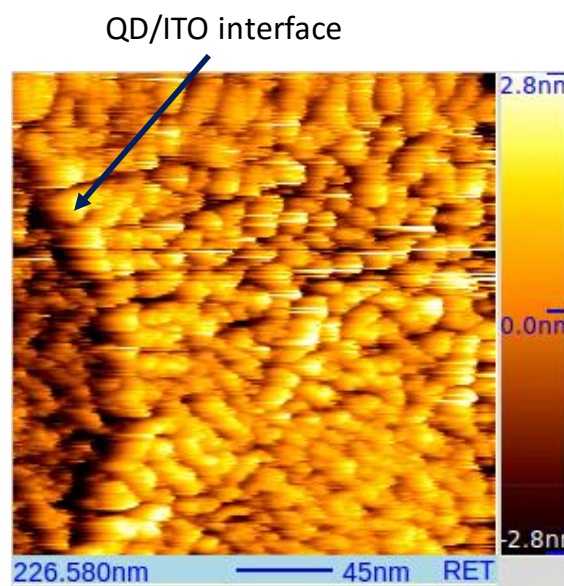


Figure S2. STM microgram for CdS (2% Co doped) surface with a device structure ITO/CdS.

Height difference in the interface indicates the monolayer formation on the substrate.

^a Address here.

^b Address here.

^c Address here.

† Footnotes relating to the title and/or authors should appear here.

Electronic Supplementary Information (ESI) available: [details of any supplementary information available should be included here]. See DOI: 10.1039/x0xx00000x

[†] Department of
Physics, Banaras Hindu
University, Varanasi-
221005, Indi

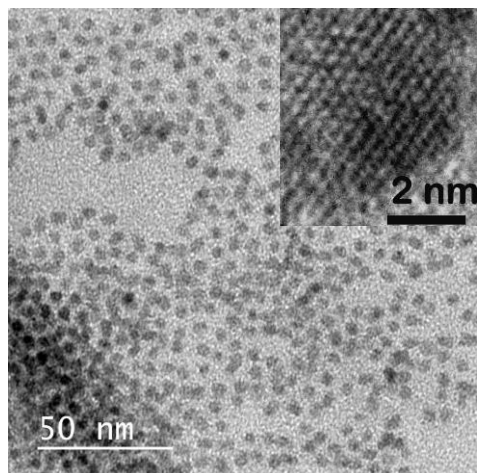
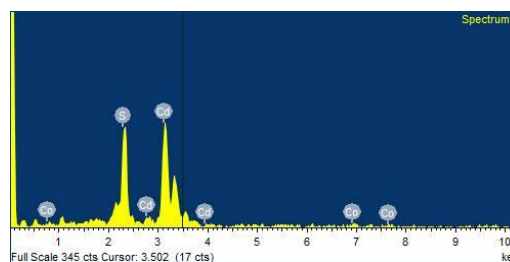


Figure S3. TEM picture of 4% doped CdS QDs . Inset shows the high resolution images of QD which clearly indicate the crystalline nature of QDs



| Element | Weight% | Atomic% |
|---------|---------|---------|
| S K | 21.29 | 47.78 |
| Co K | 3.17 | 3.87 |
| Cd L | 75.53 | 48.35 |

Figure S4. The energy dispersive X-ray analysis (EDXA) of this 4% doped QDs This data indicates the existence of Co around 3.87% in molar ratio

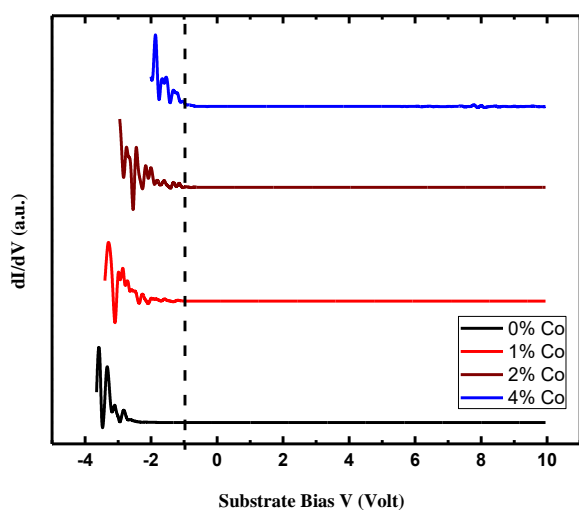


Figure S5. dI/dV Vs V plot for various Co doped CdS QDs with a device structure ITO/ZnO/CdS. Dotted line at $V=-1V$ guided the variation of turn on conduction for different doped QD device.

