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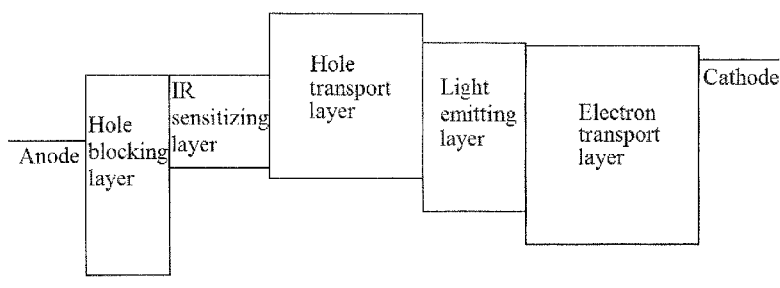


Figure 1

(57) Abstract: Embodiments of the invention are directed to an IR photodetector that broadly absorbs electromagnetic radiation including at least a portion of the near infrared (MR) spectrum. The IR photodetector comprises polydispersed QDs of PbS and/or PbSe. The IR photodetector can be included as a layer in an up-conversion device when coupled to a light emitting diode (LED) according to an embodiment of the invention.