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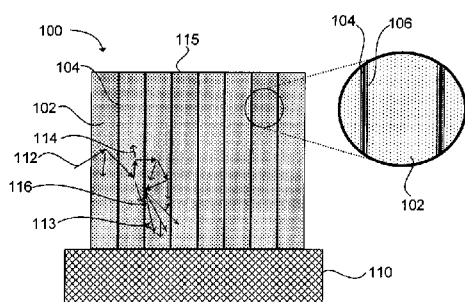
(54) Title: A HETEROGENEOUS CAPTURE-GATED NEUTRON DETECTOR

FIG. 1a

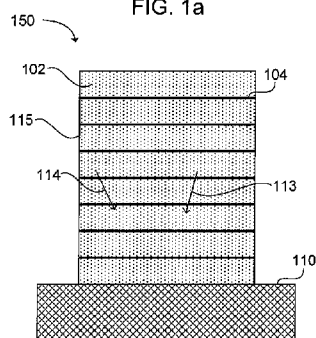


FIG. 1b

(57) Abstract: A system and method for a heterogeneous capture-gated neutron detector are disclosed. The system includes an organic hydrogenous scintillating layer (102) configured to emit at least one collision photon (114) when contacted with a neutron (112) having an energy greater than a predetermined value. A neutron capture layer (104) is located adjacent the organic scintillating layer (102) and configured to capture the neutron (112) and emit at least one gamma ray (116). The organic scintillating layer (102) is further configured to emit at least one capture photon (113) in response to the at least one gamma ray (116) from the neutron capture layer (104). Detection of the collision photon (114) and capture photon (113) designate a detected and captured neutron.

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