

ABSTRACT**OPTICAL WAVEGUIDE SENSOR FOR DETECTING RADIOACTIVE ISOTOPES
AND METHOD OF FABRICATING THE SAME**

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The present invention relates to a method for forming an optical waveguide sensor for detecting ions containing radioactive isotopes in an aqueous solution. The method comprising the steps of treating a substrate surface by cleaning the substrate surface with one or more solvents for enabling coating of the treated surface with a crosslinking agent, the substrate being selected from a group comprising a silica or a silicon substrate, coating the treated substrate surface with the crosslinking agent selected from a group comprising carboxylic acid functional group containing organic molecules for forming a crosslinked substrate surface, coating the crosslinked substrate surface with a scintillating agent for forming a substrate surface containing scintillating agent, and coating the substrate surface containing scintillating agent with a ligand capable of reacting with a radioactive isotope in an aqueous solution for forming a functionalized substrate surface, thereby forming the optical waveguide sensor comprising a layer of the ligand and the scintillating agent. The present invention also relates to the optical waveguide sensor for detecting radioactive isotopes fabricated with the method of the present invention.

20 Figure 1