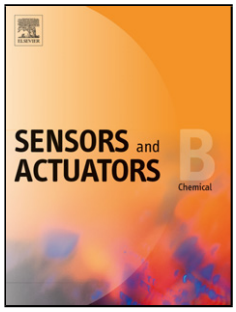

Title: A colorimetric and reversible fluorescent chemosensor for Ag^{+} in aqueous solution and its application in IMPLICATION logic gate

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Graphical abstract: A new colourimetric and fluorescent chemosensor **L-1** based on phenazine derivative was designed and synthesised, which could detect Ag^+ ions in aqueous solution with high sensitivity and selectivity over a wide pH range. The addition of Ag^+ to an aqueous solution of **L-1** induced a change in the solution color from yellow to shallow-orange and fluorescent quenching, indicating that **L-1** could act as an excellent ON−OFF-type fluorescent chemosensor for Ag^+. Furthermore, the actual usage of sensor **L-1** was further demonstrated by test kits and silica gel plates. In addition, this sensor can serve as a recyclable component in sensing materials. The corresponding experiment proved that this probe can be repeated use above 4 times. Notably, the test strips could conveniently and rapidly detect Ag^+ in solutions.