**METHOD FOR FABRICATING SEMICONDUCTOR DEVICES**

**USING STRESS ENGINEERING**

ABSTRACT

A method for fabricating a semiconductor device is presented. The method comprises providing a gate stack including a gate dielectric and gate electrode over a substrate. Stressor regions comprising stressor material incorporated into substitutional sites of the substrate are formed within the substrate on opposed sides of the gate stack. A first stressor layer having a first stress value is formed over the semiconductor device after forming the stressor regions followed by an anneal to memorize at least a portion of the first stress value in the semiconductor device, wherein the anneal is conducted at a low temperature.

**Fig. 1g**