

WHAT IS CLAIMED IS:

1. A cutting apparatus comprising:

a chuck table for holding a workpiece;

a cutting unit for cutting said workpiece held on said chuck table; and

a feeding mechanism for relatively moving said chuck table and said cutting unit;

said cutting unit including:

a spindle adapted to be rotationally driven,

a rotatable cutting blade mounted on said spindle and having a peripheral cutting edge,

a cutting water nozzle for supplying a cutting water to said cutting blade,

a photocatalyst member provided so as to come into contact with said cutting water supplied from said cutting water nozzle, wherein said photocatalyst member is provided at a location such that said cutting water comes into contact with said photocatalyst member after exiting said cutting water nozzle but before contacting said cutting blade, and

a light applying unit for exciting said photocatalyst member to thereby give an oxidizing power due to hydroxy radicals to said cutting water.

2. The cutting apparatus according to claim 1, wherein said photocatalyst member includes a titanium oxide (TiO₂) plate.

3. The cutting apparatus according to claim 1, wherein the light applying unit is configured and arranged for applying ultraviolet light.

4. The cutting apparatus according to claim 1, wherein said photocatalyst member comprises a plate fixed to said cutting water nozzle at a position adjacent to at least one nozzle hole.

5. A cutting apparatus comprising:

a chuck table for holding a workpiece;

a cutting unit for cutting said workpiece held on said chuck table; and

a feeding mechanism for relatively moving said chuck table and said cutting unit;

said cutting unit including:

a spindle adapted to be rotationally driven,

a rotatable cutting blade mounted on said spindle and having a peripheral cutting edge,

a cutting water nozzle for supplying a cutting water to said cutting blade,

a photocatalyst member provided so as to come into contact with said cutting water supplied from said cutting water nozzle,

a light applying unit for exciting said photocatalyst member to thereby give an oxidizing power due to hydroxy radicals to said cutting water, and

wherein the cutting blade performs cutting of the wafer while ductility of metal foils present on a predetermined target area is reduced due to contact between said cutting water that has been given said oxidizing power and the metal foils, thereby suppressing delamination.

6. A wafer cutting method comprising:

a wafer holding step of holding a wafer on a chuck table;

a cutting step of positioning a rotating cutting blade at a predetermined cutting area, said cutting blade having a peripheral cutting edge, and relatively moving said cutting blade and said chuck table in a cutting feed direction;

a cutting water supplying step of supplying cutting water to said rotating cutting blade and bringing a photocatalyst member into contact with the cutting water wherein said photocatalyst member is provided at a location such that said cutting water comes into

contact with said photocatalyst member after exiting said cutting water nozzle but before contacting said cutting blade; and

a light applying step of applying light for exciting said photocatalyst member in cutting said wafer, thereby giving an oxidizing power due to hydroxy radicals to said cutting water, and

wherein the cutting blade performs cutting of the wafer while ductility of metal foils present on the predetermined cutting area is reduced due to contact between said cutting water that has been given said oxidizing power and the metal foils, thereby suppressing delamination.

7. The wafer cutting method according to claim 6, wherein said light applying step comprises applying ultraviolet light.

8. The wafer cutting method according to claim 6, wherein said cutting water supplying step comprises passing cutting water through at least one nozzle hole of a cutting water nozzle and then passing the cutting water over a plate fixed to said cutting water nozzle at a position adjacent to said at least one nozzle hole.