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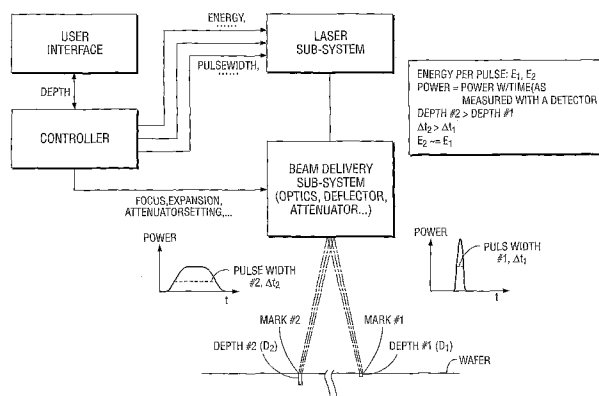
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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR LASER SOFT MARKING



(57) **Abstract:** Methods and systems for laser soft marking, especially for semiconductor wafers and devices, are provided. A laser-marking system for marking a semiconductor wafer to form a softmark on the wafer is provided. The system includes a laser subsystem for generating one or more laser pulses and a controller operatively connected to the laser subsystem. The controller sets a laser pulse width of the one or more laser pulses to selectively provide one or more laser output pulses having one or more set pulse widths that affect the depth of a softmark that is to be formed. The mark depth is substantially dependent on the one or more set pulse widths. The controller further sets a pulse energy of the one or more output pulses to selectively provide the one or more output pulses having a set total output energy that is within an acceptable process energy window for producing the softmark. The system further includes a beam delivery system that includes an optical subsystem for delivering the one or more output pulses having the one or more set pulse widths and the set total output energy into a region of the wafer such that energy density within the region, as determined by the one or more set pulse widths and the set total pulse energy, modifies wafer material and thereby produces the softmark having the mark depth within a predetermined range.



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— of inventorship (Rule 4.17(iv))

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