

ILLUMINATING APPARATUS AND METHOD FOR CONTROLLING ENERGY OF A LASER SOURCE

ABSTRACT

The invention refers to an illuminating apparatus for illuminating a sample (66) on a work stage (68) with a narrow illuminating line (70) of controlled energy, said illuminating line (70) being generated from a laser beam (12) propagating along a beam path (13) and being emitted from a laser source (10) and having an dimension in a first direction (x) exceeding an dimension in a second direction (y) being perpendicular to said first direction (x) by a multiple, comprising a beam shaping optical system (80) for shaping said laser beam (12) into a line shape (70a), an energy measuring device (58) for measuring energy of said laser beam (12), an energy control system (76) for generating a control signal (78) upon said measured laser beam energy and for controlling energy output of said laser source (10) upon said control signal (78). The invention is characterized by said energy measuring device (58) being arranged in said beam path (13) after said beam shaping optical system (80) and before said work stage (68) or by said control signal (78) being indicative of an averaged beam energy along the dimension of said line shaped beam (70a) in said first direction (x). The invention further refers to a method for controlling energy of a laser source (10) when illuminating a sample (66) on a work stage (68) with a narrow illuminating line (70), whereby said illuminating line (70) is generated from a laser beam (12) propagating along a beam path (13) and being emitted from said laser source (10) and having an dimension in a first direction (x) exceeding an dimension in a second direction (y) being perpendicular to said first direction (x) by a multiple, comprising the steps of shaping said laser beam (12) into a line (70a), measuring energy of said line shaped laser beam (12), generating a control signal (78) upon said measured laser beam energy, controlling energy output of said laser source (10) upon said control signal (78). According to the invention said control signal (78) is indicative of an averaged beam energy along the dimension of said line shaped beam (70a) in said first direction. According to another aspect of the invention said energy of said laser beam (12) in said beam path (13) is measured after said beam shaping and before said work stage (68).

Figure 2