

Title (en)  
VARIABLE REPETITION RATE MULTIPLIER BASED ON POLARIZATION ROTATION

Title (de)  
MULTIPLIZIERER MIT VARIABLER WIEDERHOLUNGSRATE BASIERT AUF POLARISATIONS DREHUNG

Title (fr)  
MULTIPLICATEUR DE TAUX DE RÉPÉTITION VARIABLE REPOSANT SUR UNE ROTATION DE POLARISATION

Publication  
**EP 4305715 A4 20240522 (EN)**

Application  
**EP 21933413 A 20210324**

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TR 2021050262 W 20210324

Abstract (en)  
[origin: WO2022203618A1] The invention relates to a method and a system for generating variable pulse repetition rate for a laser system. The invention comprises n number of cascaded controllable variable repetition rate multiplier (1) stages, where n is equal to at least one. In each repetition rate multiplier unit (2), the linearly polarized incident laser beam is transmitted through an externally controllable polarization rotator (3) followed by a polarization dependent beam splitting element (5) which either splits the beam into two orthogonally polarized beams or transmits it without splitting where either case can be selected using the polarization rotator (3). In one of the two optical paths following the polarization selective element a delay (6) equal to half the input pulse repetition period is present. A beam combining element (8) at the output of each repetition rate multiplier unit (2) combines the split beams or transmits the single beam. Thus at each multiplier stage, either the input pulse repetition rate is doubled or preserved, so that with n stages, selectable repetition rates of  $f_0$ ,  $2f_0$ ,  $4f_0$ , ...,  $2^n f_0$  are generated where  $f_0$  is the repetition rate of the input beam.

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Citation (search report)

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- See also references of WO 2022203618A1

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