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Neutron bandpass limiting chopper

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# 1 Neutron bandpass limiting chopper

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7 A neutron bandpass limiting chopper consisting of up to four discs and a slow neutrons wiper  
8 is described. It produces pulses rid of contamination by unwanted slow neutrons. The basic  
9 disc works as a single disc chopper and largely defines the TOF resolution. The widths and  
10 positions of the slots in an additional disc define the neutron bandpass. The wiper eliminates  
11 slow neutrons with wavelengths beyond the working range and can be designed not only as  
12 plates connecting the discs, but also as ribs attached to the basic disc, or else as a rotor with  
13 blades on one shaft with the basic disc. The TOF resolution can be varied by using constant  
14 width slots in the basic disc and moving the chopper as a whole to change the effective disc  
15 radius. Two supplementary discs can be used, one phased with the additional disc to optimize  
16 TOF measurements with the detector at different positions and the other phased with the basic  
17 disc to vary the TOF resolution. Application of the bandpass limiting choppers in neutron  
18 reflectometers at steady flux reactors is considered.

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20 *Keywords:* Time-of-flight technique; Neutron chopper; Neutron bandpass limiting chopper;  
21 Slow neutrons wiper; Neutron reflectometry

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