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**OGOSHI et al.**(10) **Pub. No.: US 2023/0231629 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **LIGHT SOURCE, LIGHT SOURCE DEVICE,  
METHOD OF DRIVING LIGHT SOURCE,  
RAMAN AMPLIFIER, AND RAMAN  
AMPLIFICATION SYSTEM****Related U.S. Application Data**(63) Continuation of application No. PCT/JP2021/033116,  
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Tokyo (JP)(21) Appl. No.: **18/180,512**(22) Filed: **Mar. 8, 2023**(57) **ABSTRACT**

A light source includes: a seed light source configured to output incoherent seed light with a predetermined bandwidth; and a booster amplifier that is a semiconductor optical amplifier configured to optically amplify the seed light input from a first facet, and output the amplified seed light as amplified light from a second facet, wherein the first facet and the second facet of the booster amplifier are subjected to a reflection reduction treatment, the booster amplifier is configured to operate in a gain saturated state, and relative intensity noise (RIN) and ripple are simultaneously suppressed in the amplified light.

