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Development of Ge-codoped fiber for three-wavelength Raman fiber lasers

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 \*\*, \*  
 youngeun@gist.ac.kr

We have demonstrated three-wavelength Raman fiber lasers using Ge-codoped fiber with 7-pairs of fiber bragg gratings. A slope efficiency of 18.4 % and an total output power of 1.65 W were achieved.

[1,2]

가

[3,4,5]

가

[6]

3

1

3 5

, 23 mol% (Raman gain coefficient)가 22 dB/kmW

900 nm, / 가 3.2 $\mu$ m/110 $\mu$ m

1310, 1480 nm

1.4, 1dB/km [6]

1070.8 nm, coupling 83 %

17.76 W

12 W . 5

, 440 cm<sup>-1</sup>

1

4

1129, 1195, 1270, 1353 nm

4

가

99% . 3

1

30 nm

1400/1430/1461 nm

45/60/5 %

1480 nm 0.7 dB  
 Tapering

0.4 dB

2

8.6 W 3

, 1400/1430/1461 nm

3

가

1370.5, 1495 nm

peak

, four wave mixing(FWM)

1495 nm peak

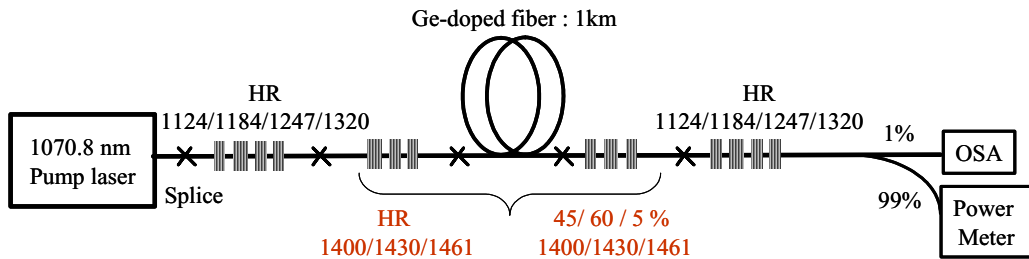
6

stokes shift

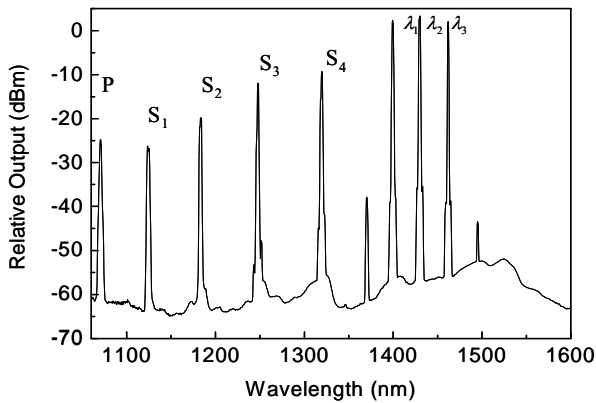
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threshold power

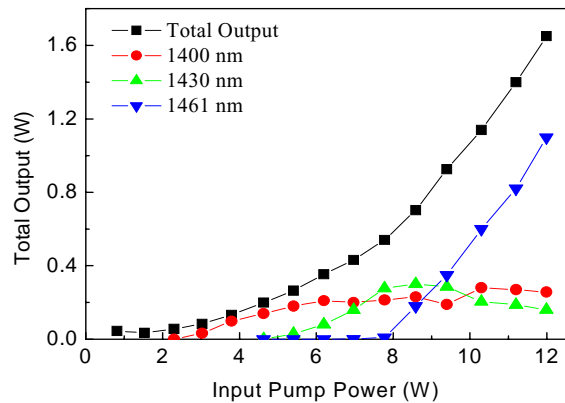
3.03/5.42/7.78 W . 가 가 3 가  
 , 1.65 W, 18.4 %  
 90 nm . 3 가 .  
 가



[ 1] 5 (GDF: 1km)



[ 2] ( P: , S<sub>n</sub> : n )



[ 3] 4

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