

**Supplementary Table OM1.** Results of the curve-fitting analyses of the spin-forbidden bands for the spectra of two garnets with different almandine contents (Fig. 1a and b, respectively).

Letter designations of the bands follow Moore and White (1972) and as modified in this study.

Bands j\*, “m’” and “??” are discussed in the text and noted in Fig. 1. FWHM is full width at half maximum. Compare to Table 1.

Band	Turtle Lake 17405762 – 23 Mol % Alm			Lind 3 – 69 Mol % Alm		
	Intensity (cm <sup>-1</sup> )	Energy (cm <sup>-1</sup> )	FWHM (cm <sup>-1</sup> )	Intensity (cm <sup>-1</sup> )	Energy (cm <sup>-1</sup> )	FWHM (cm <sup>-1</sup> )
d	0.384	14393	1911	1.292	14363	1789
e	0.423	16184	995	1.566	16210	1068
f	1.000	17388	1095	3.328	17361	1009
g	1.295	19162	1671	4.332	19120	1838
h	0.393	19812	355	1.250	19761	353
i	0.495	20144	621	1.859	20118	653
j*	0.459	20827	1114	1.232	20796	800
k	0.513	21839	1191	1.847	21656	1172
l	0.450	22892	935	1.232	22742	914
m	0.521	23566	806	2.036	23568	1095
m’	0.436	24217	886	0.477	24262	525
q	0.570	25122	1231	1.046	24847	901
“??”	0.400	26340	1219	1.094	25718	2243
r	0.442	27267	963	1.115	27097	973

Band “??” can possibly be assigned to a  ${}^6A_{1g} \rightarrow {}^4T_{1g}$  ( ${}^4D$ ) transition of  ${}^{\text{VI}}\text{Fe}^{3+}$  (Table 1)