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Journal Quality Report on "Ceramics International"

Recently, the 5GH Team analyzed the all 127 articles published on Volume 51 Issue 6 of the journal "Ceramics International", an Elsevier title, and found 14 of them (about 11%) have questionable data, spectra, and/or images, including reused spectra/images, as well as abnormal data/noise patterns. Although these cases were not all resulted from misconducts, the high percentage of the problematic articles suggests that this journal does not maintain high quality editorial and peer review process. Based on these results, the 5GH Team assigns the Journal Quality Index [1] for "Ceramics International" to be **E**.

10.1016/j.ceramint.2024.12.128

Abnormal XRD pattern is observed on Figure 1 of this article. The peak around 28 degree of the gray line is unusual sharp, as marked with a red arrow.

10.1016/j.ceramint.2024.12.128, Abnormal XRD Pattern

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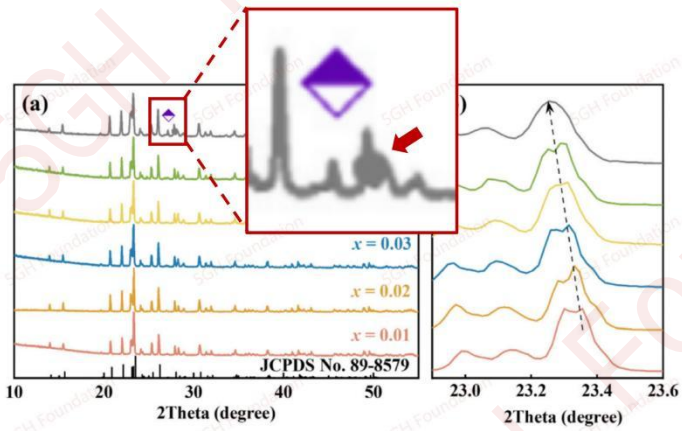
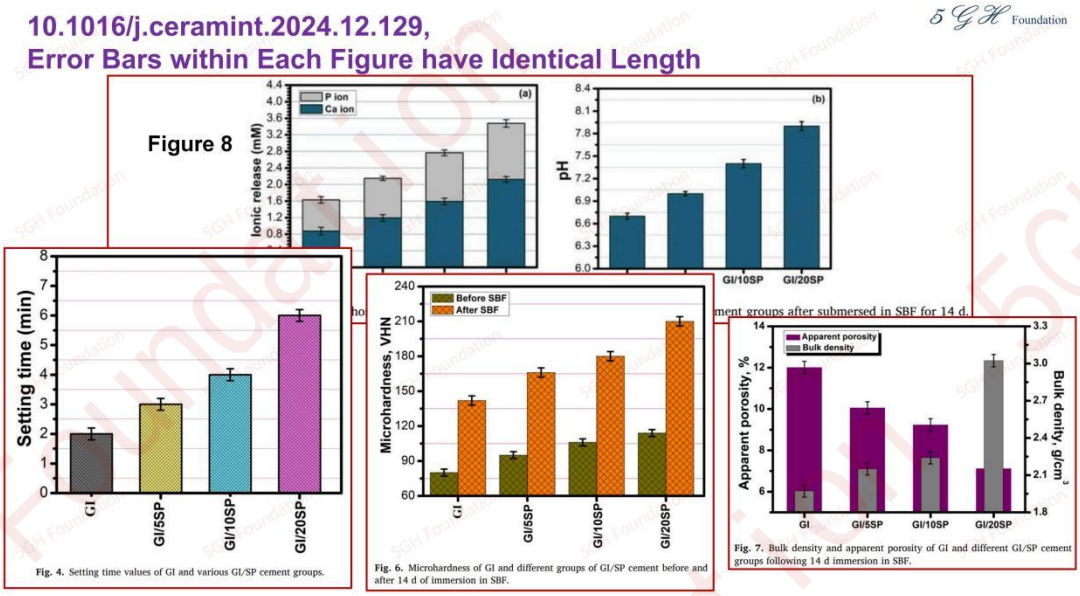


Fig. 1. (a) XRD diffraction patterns of $Al_{2-x}Nd_xMo_3O_{12}$ (x increases from 0.01 to 0.08) ceramics sintered at 825 °C; (b) The enlargement of peaks from 22.9° to 23.6°.

10.1016/j.ceramint.2024.12.129

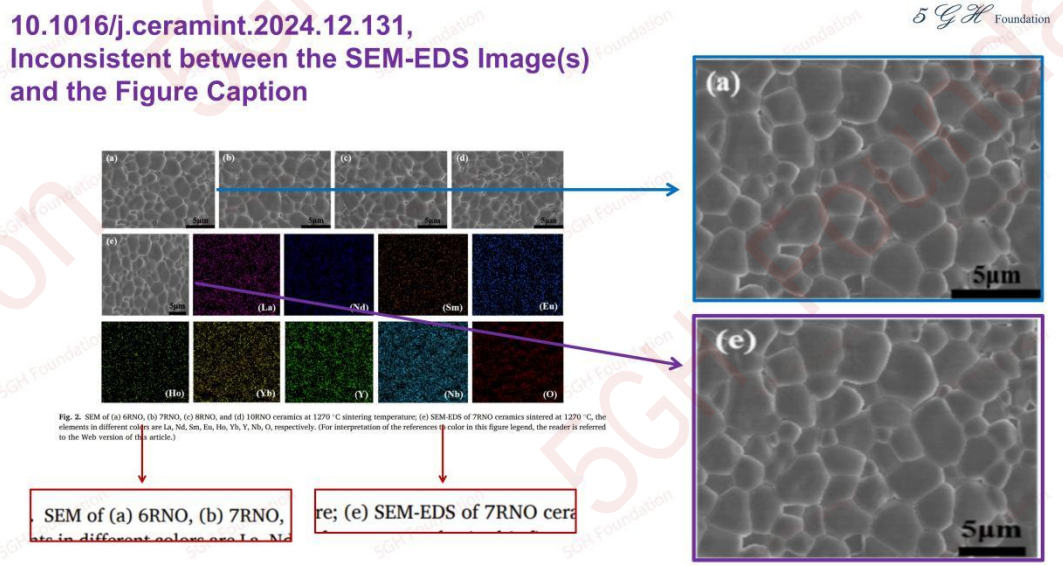
Error bars with identical length are observed within several figures, such as Figure 4, Figure 6,

Figure 7, and Figure 8.



10.1016/j.ceramint.2024.12.131

The SEM-EDX images on the Figure 2 of this article are inconsistent to the figure caption. The figure caption stated that "SEM-EDS of 7RNO ceramics" are shown on the Figure 2 (e) to (o), however, Figure 2 (e) is the same image of Figure 2 (a), taken from the 6RNO ceramic.



10.1016/j.ceramint.2024.12.143

Error bars in the Figure 4 of this articles have identical length.

10.1016/j.ceramint.2024.12.143,
Error Bars within Identical Length

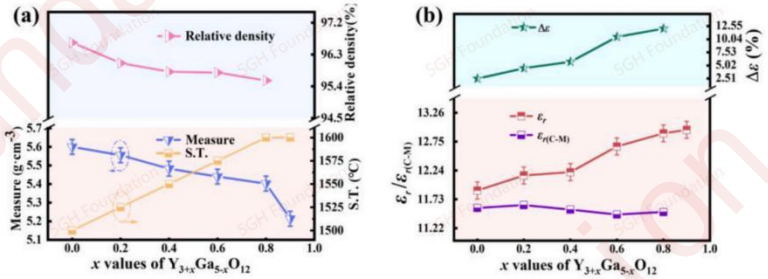


Fig. 4. (a) Bulk and relative densities and (b) measured and theoretical permittivities of $Y_{3+x}Ga_{5-x}O_{12}$ (x = 0, 0.2, 0.4, 0.6, 0.8, 0.9) ceramics.

10.1016/j.ceramint.2024.12.149

Unusual data pattern is observed on the Table 6 of this article. All the three samples with Tc of 100.0, g/L Cat of 0.35 mg/L, and O3 of 1000.00 mg/h have same experimantal outcome (degradation) of 97.66%. This is unusual, because experimental outcomes from samples with same parameters usually have slight differences.

10.1016/j.ceramint.2024.12.149, Unusual Data Pattern

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Table 6
Runs obtained in experimental planning and their degradations.

Run	Uncoded variables			Degradation (%)	
	Tc (g L^{-1})	[Cat] (mg L^{-1})	O_3 (mg h^{-1})	Experimental	Predicted
1	50.00	0.15	500.00	68.61	69.38
2	50.00	0.50	1500.00	96.43	100.00
3	150.00	0.15	1500.00	86.32	94.40
4	150.00	0.50	500.00	65.99	66.38
5	100.00	0.35	1000.00	97.66	98.19
6	50.00	0.15	1500.00	97.26	98.11
7	50.00	0.50	500.00	84.12	76.46
8	150.00	0.15	500.00	59.29	57.75
9	150.00	0.50	1500.00	95.75	97.84
10	100.00	0.35	1000.00	97.66	98.19
11	16.33	0.35	1000.00	97.62	99.89
12	183.67	0.35	1000.00	93.14	88.54
13	100.00	0.06	1000.00	92.64	87.69
14	100.00	0.64	1000.00	92.34	93.85
15	100.00	0.35	163.34	36.36	41.95
16	100.00	0.35	1836.66	99.60	91.68
17	100.00	0.35	1000.00	97.66	98.19

10.1016/j.ceramint.2024.12.150

In this article, the Figure 6 (c) and (d) are too similar to each other, howerer, the figure caption stated they were from two different samples. Besides, the Figure 7 (c) and (d) are too similar to each other, and the figure caption also stated they were from different samples, too.

10.1016/j.ceramint.2024.12.149, Too Similar Figures

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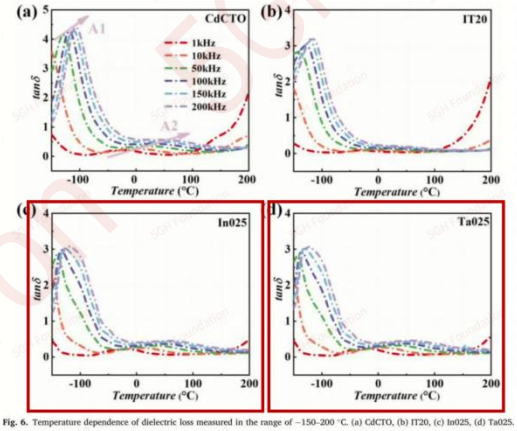


Fig. 6. Temperature dependence of dielectric loss measured in the range of −150–200 °C. (a) CdCTO, (b) IT20, (c) In025, (d) Ta025.

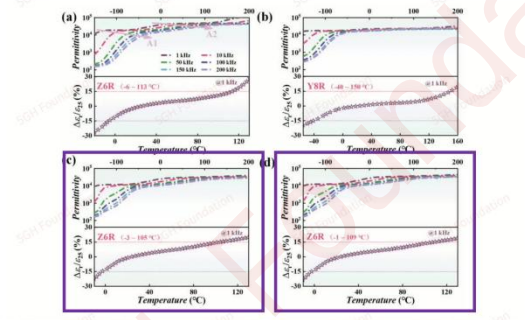
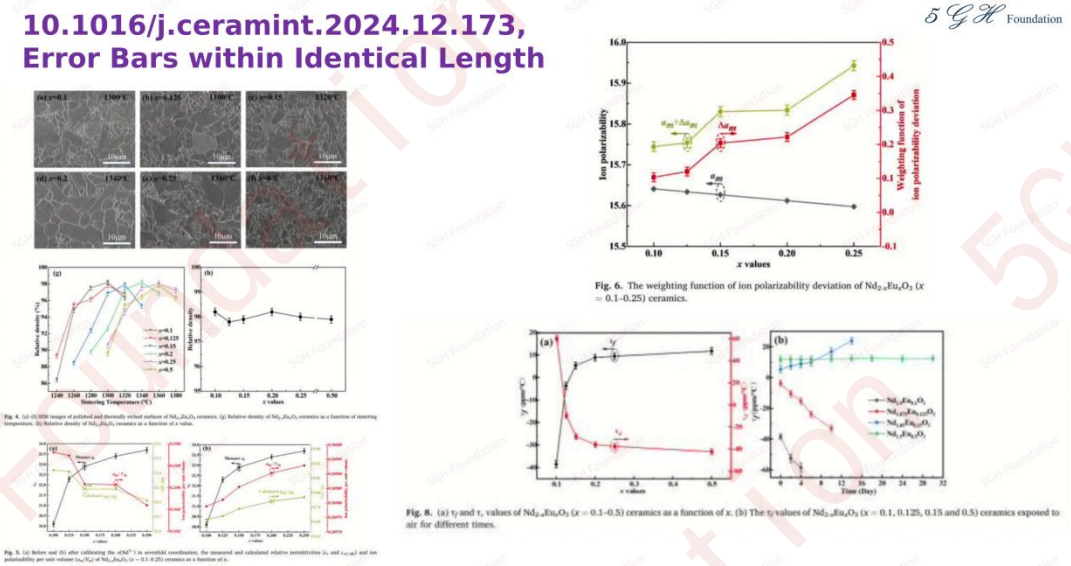


Fig. 7. Temperature dependent dielectric properties and temperature coefficients of dielectric constant for CdCTO ceramics. (a) CdCTO, (b) IT20, (c) In025, (d) Ta025.

10.1016/j.ceramint.2024.12.173

Error bars with identical length are observed within several figures, such as Figure 4, Figure 5, Figure 6, and Figure 8.

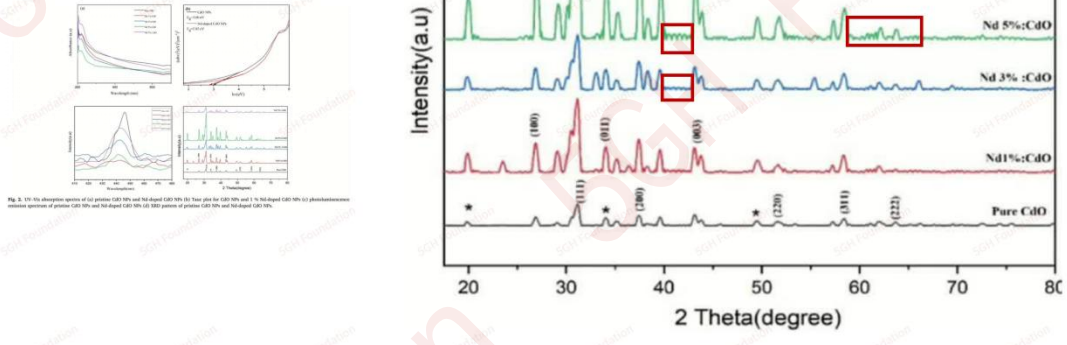
10.1016/j.ceramint.2024.12.173, Error Bars within Identical Length



10.1016/j.ceramint.2024.12.189

Abnormal noise patterns are observed in the Figure 2 (d) of this article. The noise in these lines more closely resembles wave-like patterns generated through a template mechanism, rather than random outcomes.

10.1016/j.ceramint.2024.12.189, Abnormal Noise Patterns



10.1016/j.ceramint.2024.12.206

Unusual data pattern is observed on the Table 1 of this article. The samples annealed for different time have same lattice parameters, which is unusual in real experiments.

10.1016/j.ceramint.2024.12.206,
Unusual Data Pattern

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Table 1
Lattice parameters, space group (SG), unit cell volume (V) and reliability factors of weighted pattern (R_{wp}) of ceramics after annealing by different t_a

	4h	5h	6h
a	3.9964	3.9959	3.9955
b	3.9964	3.9959	3.9955
c	3.9964	3.9959	3.9955
SG	R3m	R3m	R3m
V(Å^3)	63.82	63.79	63.77
R_{wp}	0.0328	0.0302	0.0331

10.1016/j.ceramint.2024.12.211

The SEM equipment used on the study is misidentified on this article, which stated “the prepared precursor’s powder of zinc oxide, tin oxide, and zinc stannate ceramic bodies calcined at 1100 ◦ C were examined under a Philips XL 30 SEM microscope (Philips, Netherlands) and an accelerating voltage of 30 kV”, however, the SEM images shown the Figure 3 were taken with a Tescan device.

10.1016/j.ceramint.2024.12.211, Misidentify the SEM Equipment

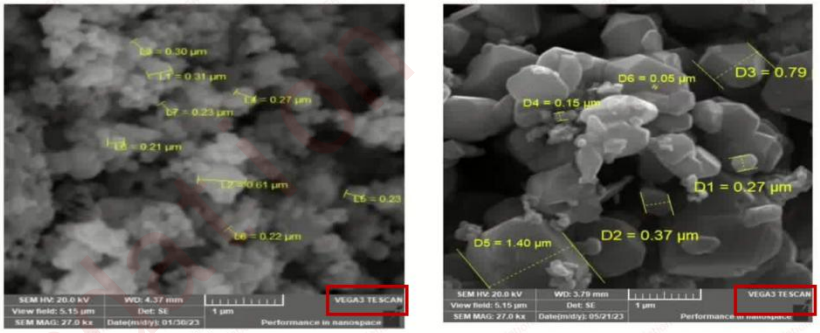

Fig. 3. a. SEM micrographs of Zincite ZnO prepared by thermal decomposition of zinc carbonate at 600 °C/2h, agglomerated particles of fine ZnO powder, b. SEM micrographs of Cassiterite SnO_2 prepared by thermal decomposition of tin oxalate at 800 °C/2h agglomerated SnO_2 particles.

10.1016/j.ceramint.2024.12.222

In this article, Figure 4 shows unexpected oscillations in the interpolated lines—a phenomenon atypical of standard impedance measurements.

10.1016/j.ceramint.2024.12.222, Abnormal Interpolated Lines (Samples: Red Arrows)

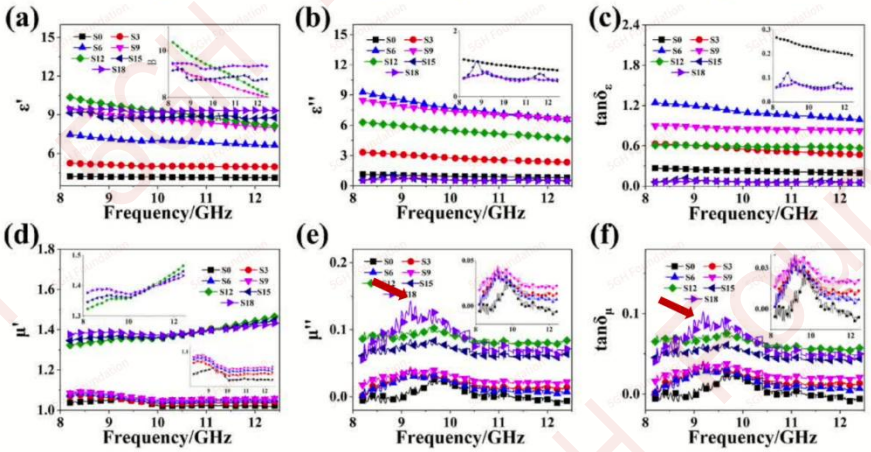

Fig. 4. (a) Real part of dielectric constant; (b) Imaginary part of dielectric constant; (c) Dielectric tangent loss; (d) Real part of magnetic permeability; (e) Imaginary part of magnetic permeability; and (f) Magnetic tangent loss for $CuAl_{1-x}Fe_xO_2$ ceramic samples with different Fe doping contents.

10.1016/j.ceramint.2024.12.230

The “200 cycles” panel and the “300 cycles” panel of the Figure 7 are too similar to each other.

10.1016/j.ceramint.2024.12.230, Reused Images

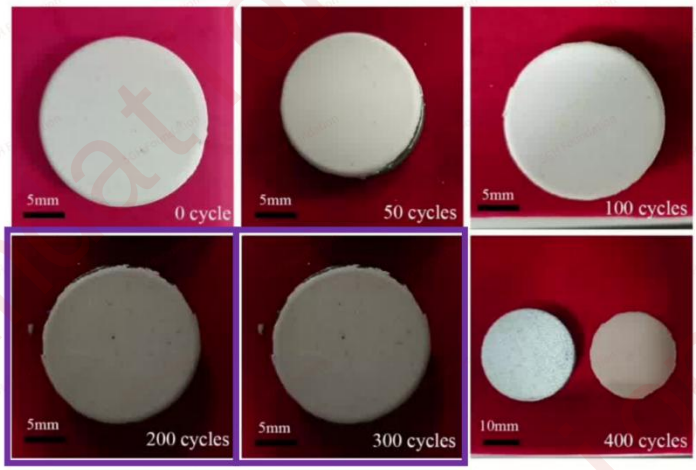

Fig. 7. Surface photographs of YSZ-$Y_2Zr_2O_7$ coatings during thermal cycling.

10.1016/j.ceramint.2024.12.232

The purple line and the blue line in the Figure 3 of this article are too similar to each other. These two lines have some identical noise patterns (marked with red arrows).

10.1016/j.ceramint.2024.12.232, Reused Spectra (Details: red arrows)

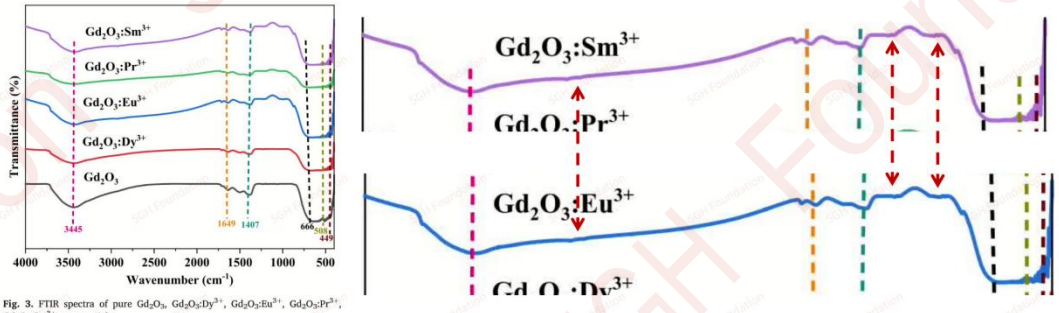

Fig. 3. FTIR spectra of pure Gd_2O_3, Gd_2O_3:Dy^{3+}, Gd_2O_3:Eu^{3+}, Gd_2O_3:Pr^{3+}, Gd_2O_3:Sm^{3+} nanoparticles.

10.1016/j.ceramint.2024.12.251

The grey line and the purple line in the Figure 6 of this article are too similar to each other, with nearly same noise patterns, except for some minor differences around the peaks about 43 degree. What is more, the article states that “SEM (QUANTA 450 FEI, Co., Hillsboro, OR, United States) testing was carried out for microcosmic observation and elemental analysis”, however, the SEM images shown in Figure 10 were taked with a Tescan equipment.

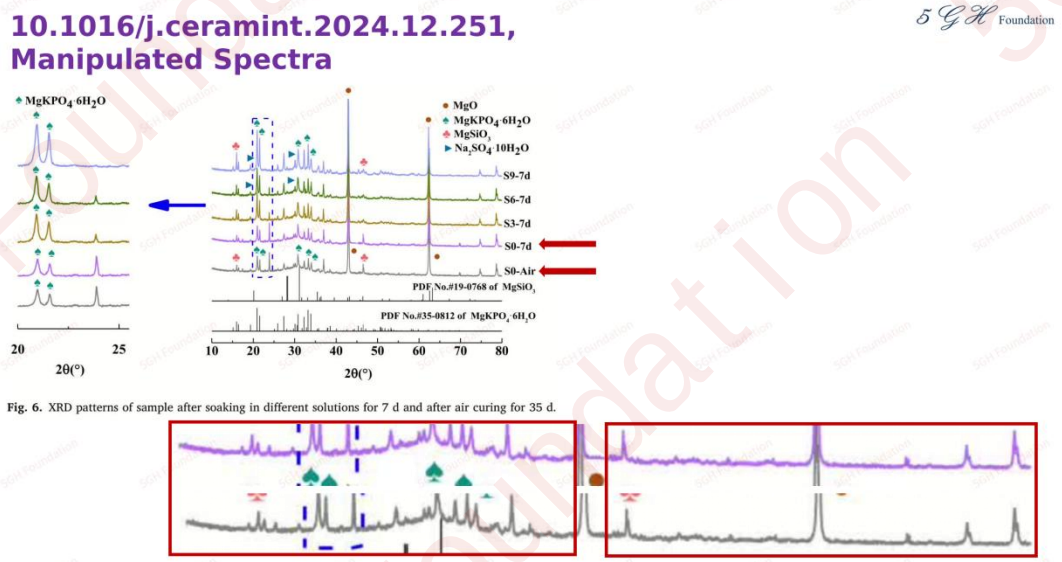

Fig. 6. XRD patterns of sample after soaking in different solutions for 7 d and after air curing for 35 d.

[1] 5GH-WuGH-2025.000040
