CHAPTER-6

(Study the Graphical views when a Transient Pulse are passes through the Porous Media.)

6.1 Transient pulse method

The transient throb scheme are worn to conclude the high temperature rejoinder on a fabric what time a laser are leave behind through the absorbent media [Slovak, (2002)]. It is awfully central twig of arithmetic section are worn to unwavering the corporal properties of substance .The foremost endeavor of this trial are to determine the fractal quantity in porous medium [Gama (2009) and Guha (2014)].

The highest position are determined by derivative the first function P (r.t), A (r.t) is space time vector.α ,£, ɛ , v ,α_{11} are constant.

[Slovak, (2002)]

$$F_b = \frac{\beta}{2}P^2 + \frac{\beta_{11}}{4}P^4 + \frac{g}{2}\left(\frac{\partial P}{\partial x}\right)^2 - quP^2 + \frac{c}{2}u^2$$
$$+ \frac{f}{2}\left(\frac{\partial P}{\partial x}u - P\frac{\partial u}{\partial x}\right) + \frac{w}{2}\left(\frac{\partial u}{\partial x}\right)^2$$
$$+ \frac{\xi}{2}P^2A^2 + \frac{\zeta}{2}\left(\frac{\partial P}{\partial x}A^2 - P\frac{\partial\left(A^2\right)}{\partial x}\right)$$
$$+ \frac{\alpha}{2}A^2 + \frac{\alpha_{11}}{4}A^4 + \frac{v}{2}\left(\frac{\partial A}{\partial x}\right)^2$$

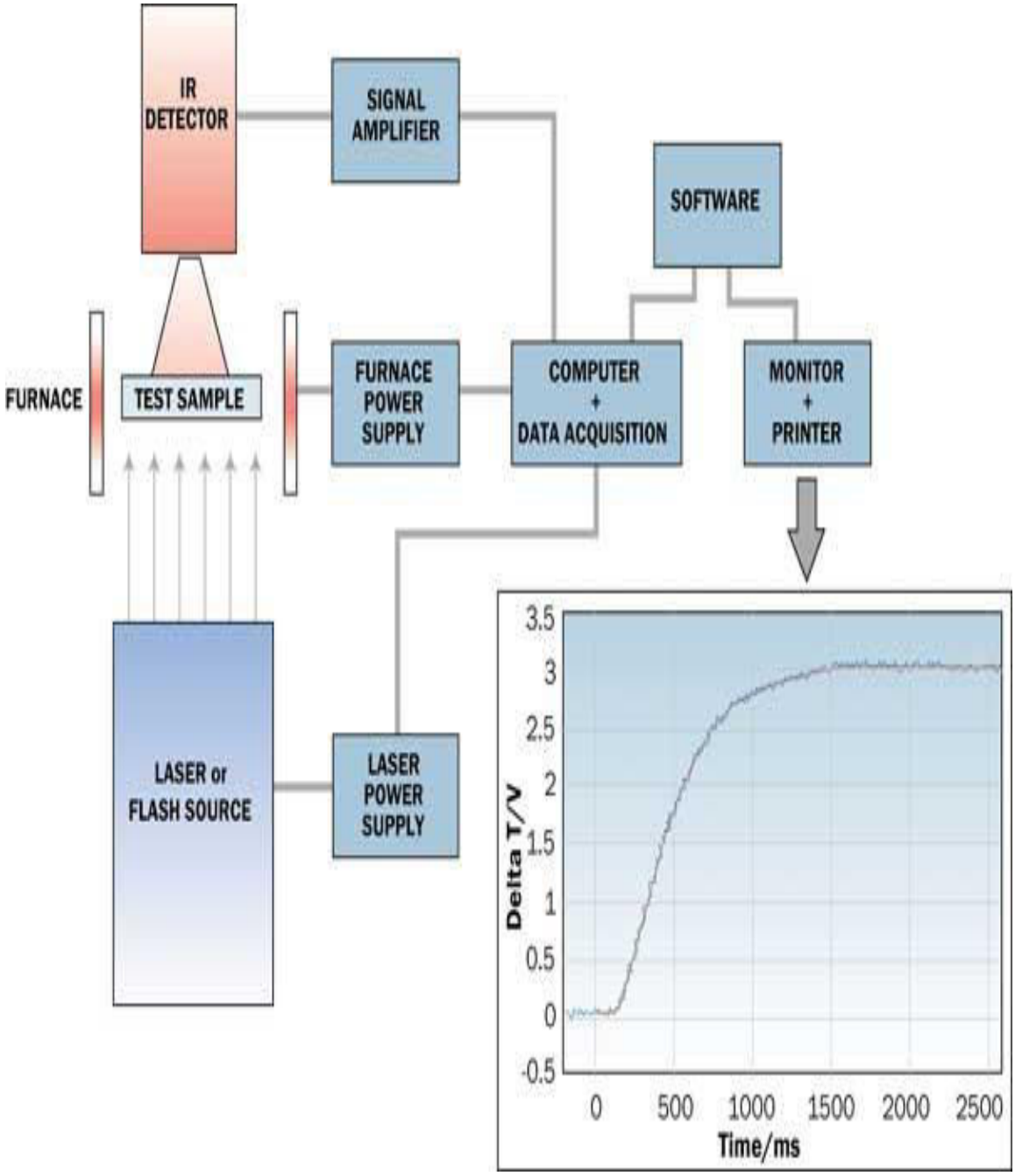

Figure 6.1 Measurement cycle of transient time response

From the above Figure 6.1 Indicator shows graph between temperature and time when a lesser pulse are passes through the porous media.

6.2 Direct Thermal Response – Direct Thermal Response of a material are simply relation ship between log value of Time verse Temperature in a material , A excellent thermal response means a good diffusivity in a stuff .Figure 6.2 shows a good diffusivity characteristics of porous magnesia with fifth solution treatments.

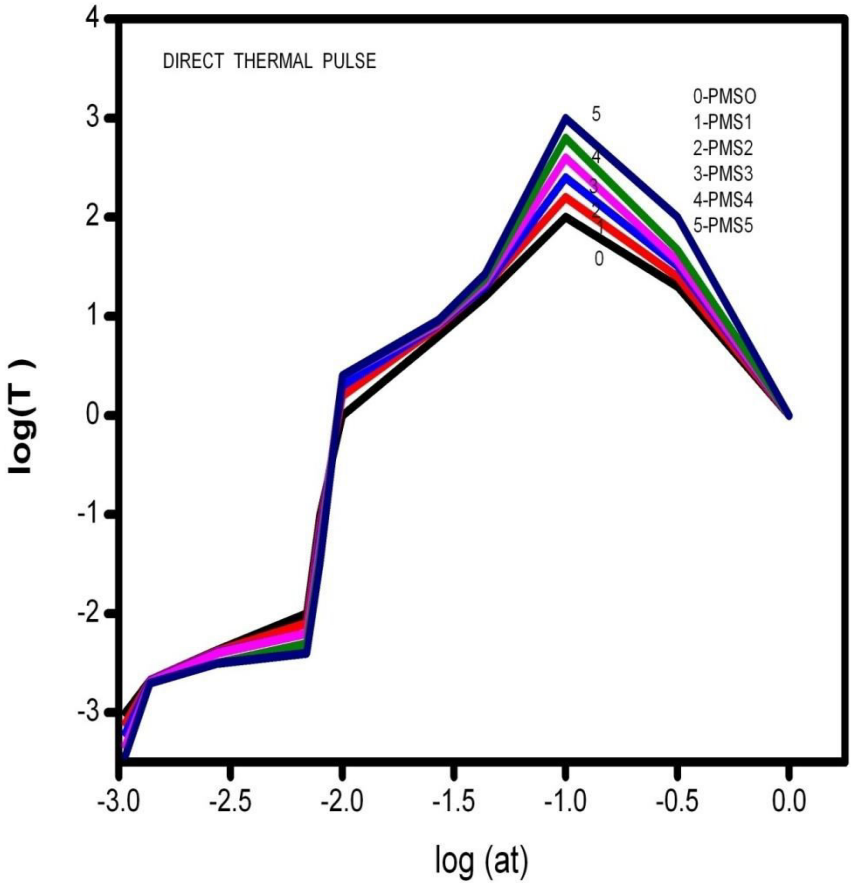

Figure 6.2 Graphical response of temperature and time in porous spinel

6.3 Slope Response on Porous Spinel- Derivative of thermal response are called slope response.Maximum slope response shows less diffusivity where as minimum slope response

Shows maximum diffusivity. Figure 6.3 Shows diffusivity with different solution treatments.

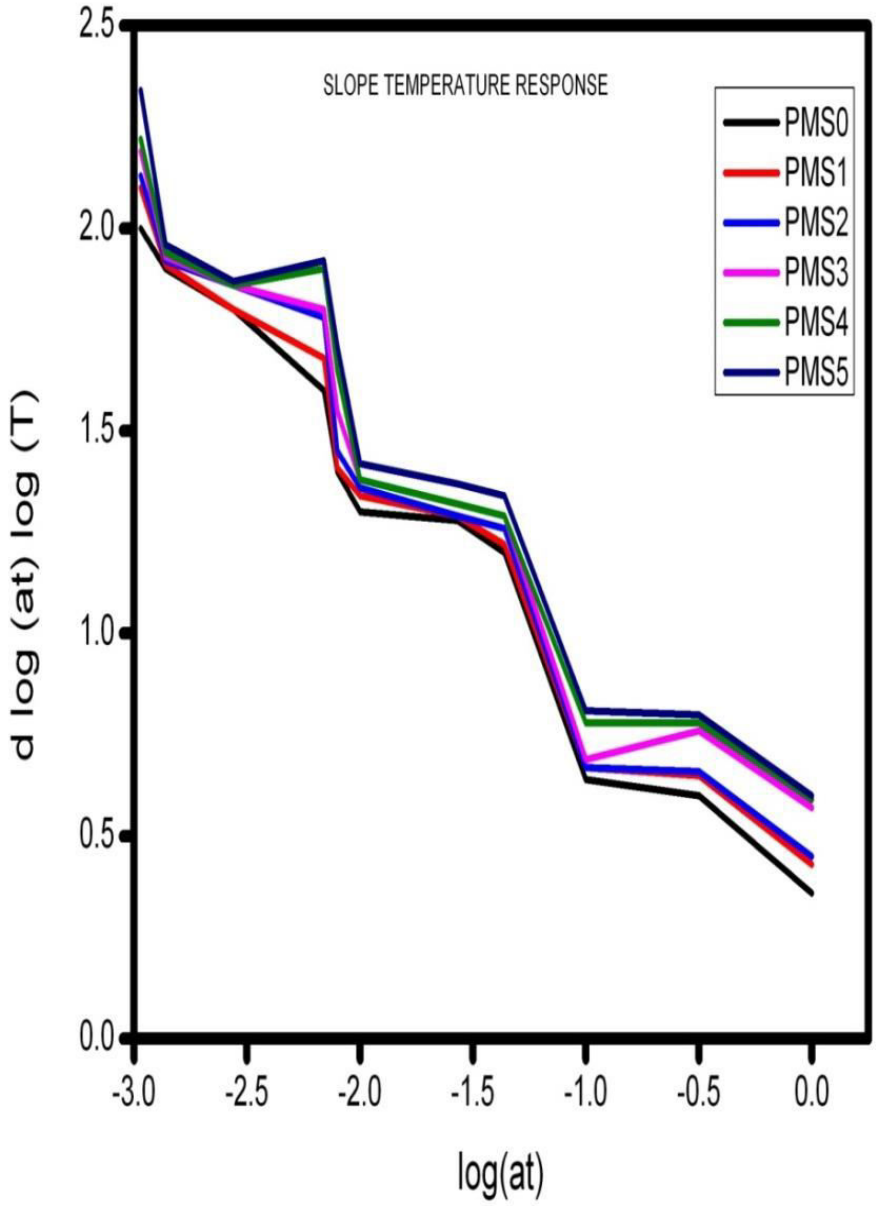

Figure 6.3 Graphical response derivative of temperature and time in porous spinel

6.4 Fractal Measurement-

Fractal measurement are used to determines the physical status of material on response of heat. Figure 6.4.1 shows D=3 to becomes zero in time equal to 300 sec shows the physical status of material on supply of heat. Figure 6.4.2 shows it takes less time to achieve the D=2 to becomes zero relatively a fast process to compare the first one.

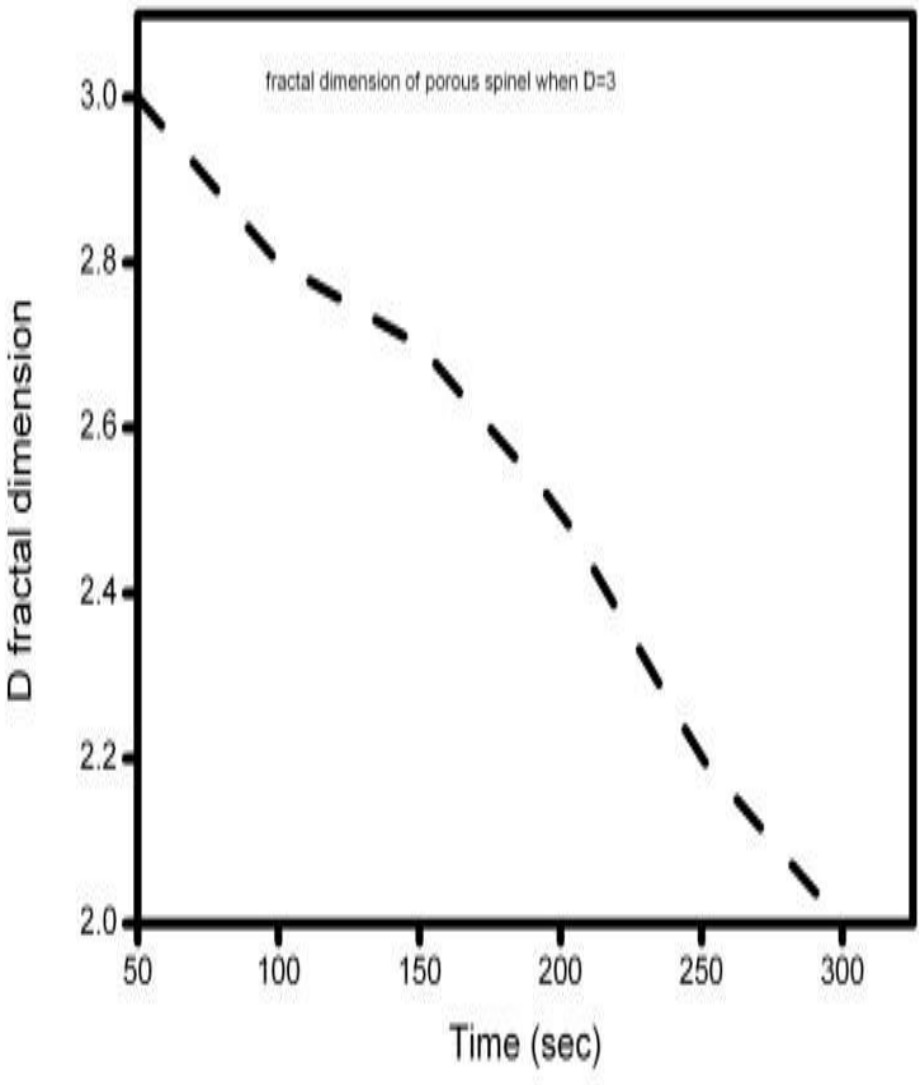

Figure 6.4 .1 Fractal response of temperature and time in porous spinel when D=3

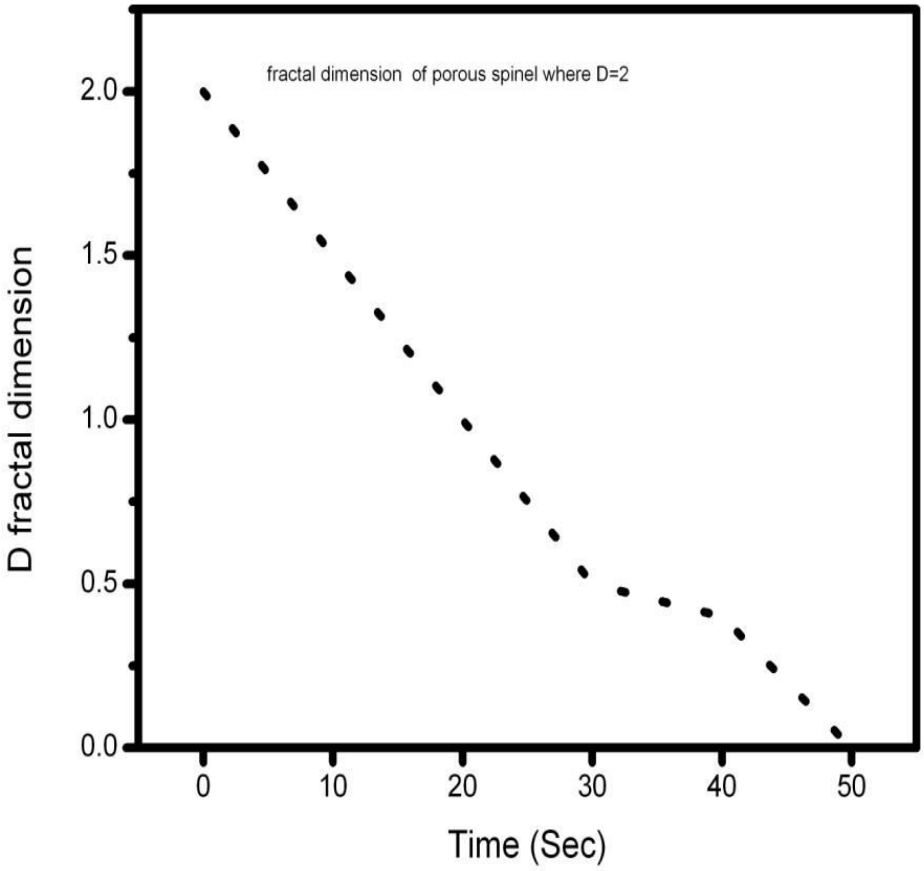

Figure 6.4.2 Fractal response of temperature and time in porous spinel when D=2

6.5 Laser pass through the porous media –

The graph between time and temperature shows a laser response on a material figure 6.5.1 shows how hurriedly body change of its temperature.speed of propagation of heat on material gives thermal response on it. Figure 6.5.2 shows maximum diffusivity for porous MgO with fifth solution treatments [Hatakeyama ,(1995)].

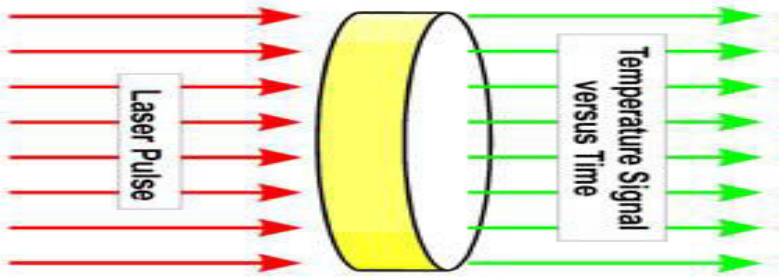

Figure 6.5.1 Laser pulse passes through the porous media

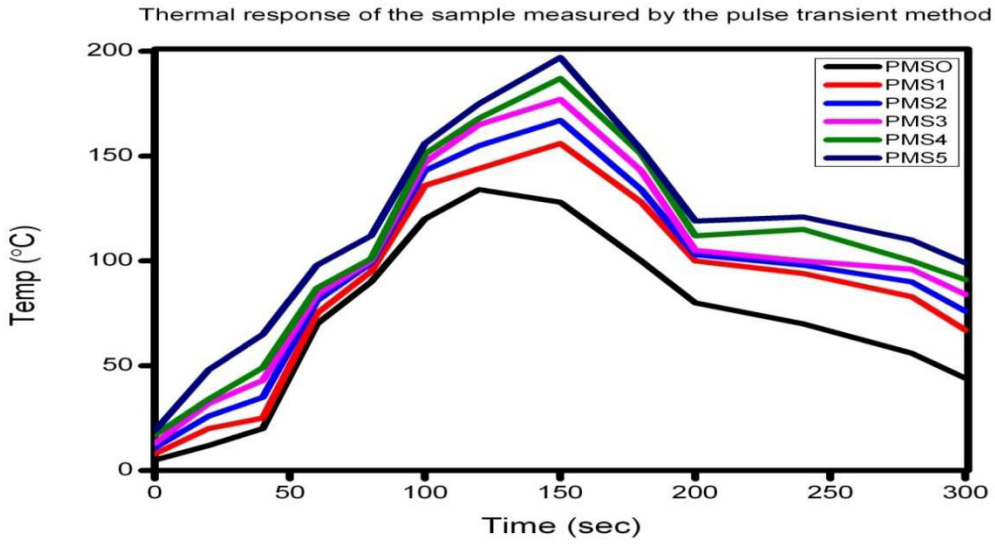

Figure 6.5.2 Response of Laser pulse passes through the porous