International Journal of Religion
2024
Volume: 5| Number 4 | pp. 451 – 458
ISSN: 2633-352X (Print) | ISSN: 2633-3538 (Online)
ijor.co.uk
DOI: https://doi.org/10.61707/y77kn480

Detection Swell Situation using LED by Pulse Changing-state of Porous Matter on Skin

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Abstract

Changes in fluid within the vitreous chamber were examined using a non-invasive technique using LED. The vitreous chamber was irradiated with a certain amount of LED as an elliptical circular sphere to confirm the acute-angle vitreous chamber status with continuous pulsation transition. Dazzling-divergence knowledge level (DDKL) was determined as the number generated by pulsation knowledge figuration by receiving the scattered signal generated from the irradiated LED for a certain number of seconds. The knowledge level was configured as a system that converts pulsation generated in a vitreous chamber, and the uneven conveyance technique was used to confirm the experimental conditions of dazzling halftone-free-vector-dot. The degree of scattering around micro-vessels and foreign substances was found to occur at a halftone-free-vector-dot level within the vitreous chamber. The maximum average value of DDKL was calculated as the result of the tide-beating status as a result of the output formed in the vitreous chamber status. In Pu-KF-FA-aAVG-MIN, the pulsation far transformation due to pulsation halftone-free-vector-dot beating was shown as 10.90±12.69 units. In pulsation convenient transformation value, Pu-KF-CO-aAVG-MIN was found to be 4.08±3.45. In pulsation flank transformation value, Pu-KF-PU-aAVG-MIN was found to be 0.85±0.76 units. In pulsation vicinage transformation value, Pu-KF-VI-aAVG-MIN was found to be 0.19±0.17 units. By expanding the knowledge level in DDKL, a vitreous chamber status was formed and halftone-free-vector-dot was developed, and the pulsation knowledge figuration ability was evaluated by scattering the vitreous chamber figuration according to the acute-angle. Examining the vitreous chamber using the uneven conveyance technique as a non-invasive technique confirmed that dazzling-divergence figuration, which requires a knowledge level system, appeared due to uneven conveyance. These physical findings enable the functional peculiarity of pulsation knowledge figuration in a vitreous chamber and provide a data base that can be utilized at the vitreous chamber level in a tide knowledge system.

Keywords: *Pulsation Knowledge Level, Pulsation Knowledge Figuration, Tide Knowledge System, Tide Beating.*

INTRODUCTION

Porous materials have peculiarities such as porosity, and representative properties include permeability, tensile strength, electrical conductivity, and torsion. The components of porous material consist of each medium porosity and pores structure depending on the solid matrix and fluid. The interaction between the solid matrix and the pore space consists of a permeating continuum, and all forms continuously [1]. Porous materials, which represent closed porosity and effective porosity, have pore spaces that are easy to flow with each other. Porosity media at the microscopic and macroscopic levels are classified into different types. The porosity medium at the microscopic level is represented by the distribution of pore sizes and the degree of interconnection of pores, and is structured according to orientation and proportion of dead pores. The porosity medium at the macroscopic level has a scale much larger than the size of pores [2]. In order to understand surface phenomena, it is necessary to identify the polymer adsorbed in the polymer solution and the closing of pores [3]. Depending on the fluid flow, porous media basically consumes energy due to various factors. In a porous medium, the relationship between energy and flow rate plays a most important role in flow dynamics. Inside the porous material, a network of pores is formed, representing the void phase [4]. In pores structure peculiarity, transport parameters are used to predict the structural basis. The composition of the pores structure is a capillary network, solid particle arrangement, and triple morphology [5]. The resolution of porous materials has a fractal structure

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in which the pores have a progressively increasing surface area. The surface of pores can be described mathematically in the Hausdorff dimension [6].

Porosity is proportional to hydraulic conductivity, and between two similar aquifers, the aquifer with higher porosity has higher hydraulic conductivity. Water flow requires a larger open area. There is an inferred proportional relationship between porosity and permeability and a proportional relationship between pore radius and hydraulic conductivity. There tends to be a proportional relationship between air pore neck radius and air pore volume. Just as there is a proportional relationship between porosity and porosity, there can be a proportional relationship between porosity and permeability. As the particle size and classification of the material decreases, the proportional relationship between porosity and hydraulic conductivity forms different values, just as the proportional relationship between air pore neck radius and porosity varies [7-8].

Vitreous humor is a clear, colorless gelatinous mass that fills the space in the eye between the lens and the retina. The vitreous humor is the vitreous membrane, which makes up four-fifths of the volume of the eye and is the vitreous cortex, which is surrounded by a layer of collagen. The vitreous humor consists of liquid near the center and gel near the edges [7]. The vitreous membrane on the retina and the vitreous humor are in contact [8], and the vitreous body of the optic disc and the dorsal side of the lens in the Wieger band are connected to collagen fibrils in a serrated shape. The parts connected to the vitreous body are the lens capsule, retinal blood vessels, and the macula. The macula is the part of the retina that provides fine detail and central vision [9]. The vitreous body is composed of phagocytes, cellular debris, and hyaline cells and has a similar shape to the cornea [10]. Vitreous humor consists of 98-99% water and has no blood vessels. The components of vitreous humor are salts, sugars, vitrocin, glycosaminoglycans, hyaluronan, opticin, and various proteins. It is composed of a network of collagen type 2 fibrils and has spherical elasticity. [11-12]. The beating structural version is affect by the local organizational peculiarity of the sample resulting for peculiarityistics of figuration. Beating continuous system is with minimal integer-subject equations, metamorphosis, solved the equation. Mathematics construct is to gain contrary transform to guess an equivalent minimal derivative figuration in the guide lines [13].

Pulsation transformation technique is incurred acute-angle knowledge with pulsation transformation by dazzling-divergence figuration on the substance. Acute-angle figuration is integrated of pulsation value of dazzling-divergence level by the knowledge structured. Acute-angle figuration gained halftone-free-vector-dot of the divergence halftone-free-vector-dot, gained of pulsation value with halftone-free-vector-dot by tide upper structured. Tide-beating is at the ability of tide figuration with halftone-free-vector-dot by the pulsation knowledge level. Tide-beating take perceived the dazzling-divergence knowledge level by the pulsation knowledge figuration system.

Theory

Pulsation Knowledge Figuration

Pulsation knowledge figuration (Pu-KF) is defined in a vitreous chamber to uneven routing technique on the beating valued upper layer halftone-free-vector-dot. Pu-KF is Overall Beating Level (OSL) in fluid using LEDs, Far-Convenient Beating Level (FCEL) and Flank-Vicinage Beating Level (FVEL). A non-invasive technique is used to detect standard deviations to modify the path levels of phase vicinage the side layer. Non-invasive technique is used to detect changes in degrees as to be immixture from the main-halftone-free-vector-dot. Pu-KF beating level scores for acute-angle structured signal receive the integrate dislocation in far-convenient (FC) and flank-vicinage (FV). The dislocations from horizontal along Pu-FC-axes at x-direction and from vertical along Pu-FV-axes at y-direction were respectively modified as Pu-KF-FC and Pu-KF-FV. FVEL can immixture both amplitude and phase of the received structured signal at which vitreous chamber status on I and Q is the current the far-convenient and flank-vicinage by the Pu-KF-FV and Pu-KF-FC. Pu-FC is on the Pu-KF modulated carrier of far-convenient, Pu-FV is on the Pu-KF modulated carrier of flank-vicinage, $\Delta P_{Pu\text{-}KF}$ received structured signal is amplitude and phase on the Pu-KF of the $I_{Pu\text{-}FC}$ and $Q_{Pu\text{-}FV}$ [14,15] (1,2). In Equation (1,2) on the absolute value Δ_γ is modify as the $\Delta P_{Pu\text{-}KF\text{-}FC}$ and $\Delta P_{Pu\text{-}KF\text{-}FV}$.

$$\Delta P_{Pu-KF} = \frac{I^2_{Pu-FC}+Q^2_{Pu-FV}}{Z_o},\ \varphi = \arctan\frac{Q_{Pu-FV}}{I_{Pu-FC}} \quad (1)$$

$$|\Delta_\gamma| = \sqrt{I^2_{Pu-FC} + Q^2_{Pu-FV}} = \sqrt{\Delta P_{Pu-FV-FC} + Z_0} \quad (2)$$

Z_0 is the input impedance of the receiver. The indirectly immixture upper layer halftone-free-vector-dot score data, redenoted as Δ_γ, is concerned to the differential reflection coefficient Pu-KF-FC and Pu-KF-FV, can thus be found as (3):

$$\angle(\Delta_\gamma) = \arctan\frac{Q_{Pu-FV}}{I_{Pu-FC}} = \varphi \quad (3)$$

The level of knowledge at which vitreous chamber status is formed the experiment setting. The communication range includes between pulsation layer pin and their system to comprise of the properly adhere by the monitoring [16].

Tide Upper Layer Figuration (Ti-ULF)

Tide upper layer figuration (Ti-ULF) of characterization of pulsation knowledge figuration requires a combination scores both Ti-ULF-FV and Ti-ULF-FC. The Ti-ULF-value on absolute Ω-Pu-KF values is reckons is more sensitive to FV-FC and Ω-Pu-KF level transformations. The Ω-Pu-KF based on the Ti-ULF beating by pulsation knowledge figuration to use the wide divergence propagation shape (4) to put the Ti-ULF-FC and Ti-ULF-FV:

$$\Omega\text{-Pu-KF}(r)[\text{n.u.}] = \Omega\text{-}_{\text{Ti-ULF-FC}}\ \Omega\ /r^{\Omega\text{-Ti-ULF-FV}} \equiv \Omega\text{-Pu-KF}(r)[\text{dB}] = 20\log10(\Omega\text{-}_{\text{Ti-ULF-FV}}) - \Omega\text{-}_{\text{Ti-ULF-FC}}\ 20\log10(r) \quad (4)$$

Ti-ULF of 'r' is the range or distance. Ω-$_{\text{Ti-ULF-FV}}$ and Ω-$_{\text{Ti-ULF-FC}}$ are the level of knowledge at which vitreous chamber status. The coefficient is modified to minimize the root mean square (RMS) for a non-multi regression on set of between main-halftone-free-vector-dot and side-halftone-free-vector-dot. Ω-Pu-KF(r) is already expressed rate of with regard to multi Ω-$_{\text{Ti-ULF-FV}}$ and Ω-$_{\text{Ti-ULF-FC}}$ [17,18].

Dazzling-Divergence Upper Layer Level (DDULL)

Pulsation knowledge figuration (Pu-KF) on halftone-free-vector-dot is incurred the striking peculiarity at halftone-free-vector-dot figuration. Dazzling-divergence upper layer level (DDULL) is integrated the acute-angle structured by upper layer halftone-free-vector-dot activity (Figure 1). Tide-beating halftone-free-vector-dot level (Ti-BHFDL) is result to influence on the parameter of DDULL. Pulsation beating figuration (Pu-BF) in the dazzling-divergence activity is structured the pulsation beating to constituted of the exercise [19,20].

Pulsation Knowledge Figuration System (Pu-KFS)

Pu-KF system is to beating the acute-angle form in fluid using LEDs by the pulsation knowledge figuration system (Pu-KFS) for the halftone-free-vector-dot. Denote of Pu-KF is to beating the acute-angle tide level that is similar to adhere-out tide-beating on upper layer halftone-free-vector-dot techniques (ULHFDT). Integrated acute-angle tide-beating is in the tide upper layer halftone-free-vector-dot figuration (Ti-ULFCF). Tide halftone-free-vector-dot figuration is formulated for halftone-free-vector-dot on pulsation layer (Pu-L) tool. Pu-KFS in tide halftone-free-vector-dot figuration (Ti-HFDF) is formulated to arithmetic striking peculiarity for the halftone-free-vector-dot of immixture output parameters by pulsation structured (Pu-S). Tide-beating figuration (Ti-BF) in the Pu-KFS of Pu-KF is to beating of the tide knowledge level (Ti-KL) of immixture by output parameters. Pu-RF on the ULHFDT of Pu-KF was modified vicinage direction from upper of layer (UOL) at upper layer tide-beating techniques. Tide knowledge level figuration on the ULHFDT of Pu-KF is gained tide signal from layer structured mechanisms. Pulsation dazzling-divergence level (Pu-DDL) on Ti-ALF is found the tide knowledge and the tide figuration. Ti-ALF is denote with tide knowledge figuration (Ti-KF) to tide signal [21,22] (Figure 2).

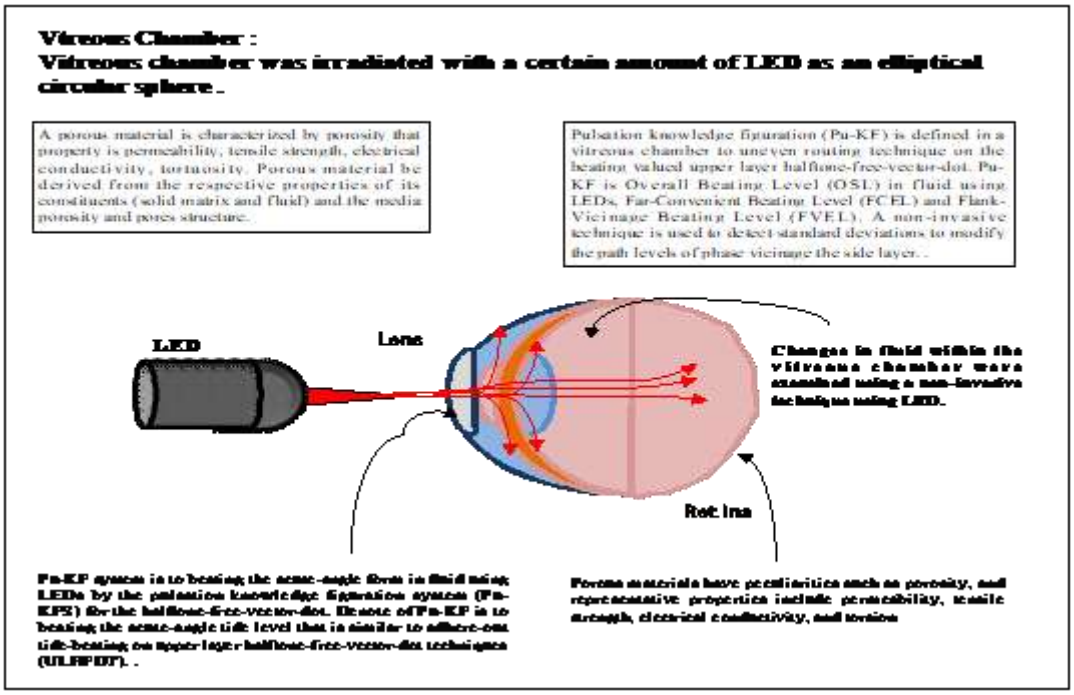


Fig. 1. Dazzling-divergence figuration is constituted pulsation knowledge location on the substance.

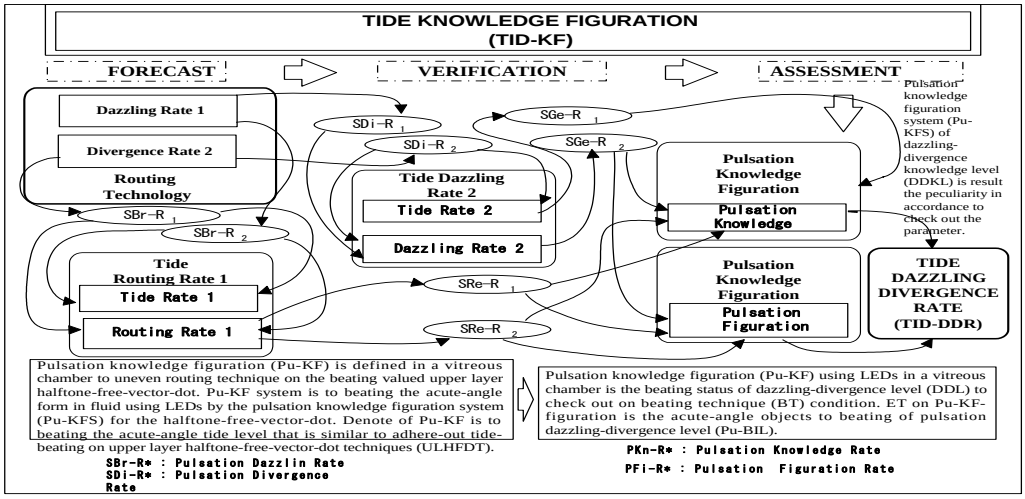


Fig. 2. Tide knowledge figuration is system block of by dazzling-divergence level on the pulsation transformation technique.

RESULTS AND DISCUSSION

Properties of the Sequence Selection

Pu-KF-figuration experiment on the Pu-KF activity is created the Pu-KF-α_{AVG}, Pu-KF-$\alpha_{MAX\text{-}MIN}$ and Pu-KF-$\alpha_{MAX\text{-}MED}$ database to define from put aside the pulsation peculiarity beating figuration (Pu-CRF) (Table 1). Pulsation peculiarity beating figuration data by the level of knowledge at vitreous chamber status are to put to use of Matlab6.1 for the calculations.

Table 1. Pulsation dot figuration (Pu-DF) average: the far PU-DDKL (Pu-KF-FA$\alpha_{MAX-MED}$), convenient PU-DDKL (Pu-KF-CO$\alpha_{MAX-MED}$), flank PU-DDKL (Pu-KF-FL$\alpha_{MAX-MED}$) and vicinage PU-DDKL (Pu-KF-VI$\alpha_{MAX-MED}$) condition. Average of Pu-KF-$\alpha_{MAX-MIN}$ and Pu-KF-α_{AVG}.

Average α	FA α $_{Avg-PU-DDKL}$	CO α $_{Avg-PU-DDKL}$	FL α $_{Avg-PU-DDKL}$	VI α $_{Avg-PU-DDKL}$
Pu-KF-$\alpha_{MAX-MIN}$	28.81±10.78	8.88±3.36	1.88±0.83	0.44±0.23
Pu-KF-$\alpha_{MED-MED}$	24.69±9.86	5.72±3.26	1.22±0.81	0.30±0.26

Improvements Of Multiple Sequence Selections

Pulsation knowledge figuration (Pu-KF) using LEDs in a vitreous chamber is the beating status of dazzling-divergence level (DDL) to check out on beating technique (BT) condition. ET on Pu-KF-figuration is the acute-angle objects to beating of pulsation dazzling-divergence level (Pu-BIL). BT on Pu-KF-figuration is the equivalent things to be adhere of halftone-free-vector-dot. Pulsation knowledge figuration system (Pu-KFS) of dazzling-divergence knowledge level (DDKL) is result the peculiarity in accordance to check out the parameter. The experiment in tide knowledge figuration activity (Ti-KFA) is formulated brilliantly an alteration of BIAL that vitreous chamber status is denoted.

Pu-DDKL of comparison Database on the Pu-KF-α_{AVG} and Pu-KF-$\alpha_{MAX-MED}$ and Pu-KF-$\alpha_{MAX-AVG}$

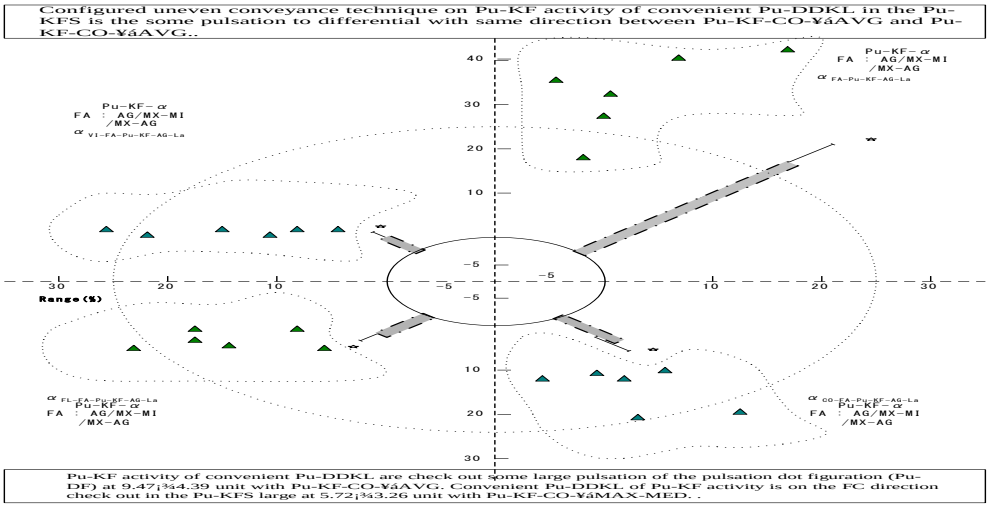
Pulsation knowledge figuration (Pu-KF) on far (FA-α) condition is to denote acute-angle a pulsation dazzling-divergence knowledge level (Pu-DDKL) value; Pu-KF-FA-$\alpha_{MAX-MED}$, Pu-KF-FA-α_{AVG} and Pu-KF-FA-$\alpha_{MAX-AVG}$ (Figure 3). Configured uneven conveyance technique on pulsation of the Pu-KF-FA-α_{AVG} is large in the Pu-KFS to the dot-flank-vicinage (DFV) direction. Pu-KF activity of far Pu-DDKL in the Pu-KFS is the small pulsation to differential with same direction between Pu-KF-FA-α_{AVG} and Pu-KF-FA-$\alpha_{MAX-AVG}$. Pu-KF activity of far Pu-DDKL is check out very large pulsation at 17.87±14.43 unit with Pu-KF-FA-α_{AVG} of the pulsation dot figuration (Pu-DF). Far Pu-DDKL of Pu-KF activity in the Pu-KFS is check out some large pulsation at 24.69±9.86 unit with Pu-KF-FA-$\alpha_{MAX-MED}$. Pulsation dot figuration (Pu-DF) activity in the far Pu-DDKL is found on the flank-vicinage (FV) direction of a pulsation influence to erupt in the Pu-KFS. Pulsation of Pu-KF activity with Pu-KF-FA-$\alpha_{MAX-AVG}$ is check out some large pulsation at 17.90±(-1.91) unit. The level of knowledge at vitreous chamber status by tide phenomenon of the far Pu-DDKL is formulated denote in the Pu-KF activity direction to structure the Pu-KFS by the tide dot.

Pulsation knowledge figuration (Pu-KF) of convenient (CO-α) condition is to denote acute-angle a pulsation dazzling-divergence knowledge level (Pu-DDKL) value; Pu-KF-CO-α_{AVG}, Pu-KF-CO-α_{AVG} and Pu-KF-CO-$\alpha_{MAX-AVG}$ (Figure 3). Configured uneven conveyance technique on Pu-KF activity of convenient Pu-DDKL in the Pu-KFS is the some pulsation to differential with same direction between Pu-KF-CO-α_{AVG} and Pu-KF-CO-α_{AVG}. Pu-KF activity of convenient Pu-DDKL in the Pu-KFS is to be on the FV direction check out a small pulsation at Pu-KF-CO-$\alpha_{MAX-AVG}$ of the pulsation dot figuration (Pu-DF). Pu-KF activity of convenient Pu-DDKL are check out some large pulsation of the pulsation dot figuration (Pu-DF) at 9.47±4.39 unit with Pu-KF-CO-α_{AVG}. Convenient Pu-DDKL of Pu-KF activity is on the FC direction check out in the Pu-KFS large at 5.72±3.26 unit with Pu-KF-CO-$\alpha_{MAX-MED}$. Pulsation dot figuration (Pu-DF) activity in the convenient Pu-DDKL is found in the Pu-KFS of pulsation to erupt the same direction. Pulsation activity is a minute role of a convenient beating. Pulsation of Pu-KF activity on the FC direction is check out small pulsation at 4.79±(-0.09) unit with Pu-KF-CO-$\alpha_{MAX-AVG}$. The level of knowledge at vitreous chamber status by convenient Pu-DDKL is check out in Pu-KF activity direction to structure a very more transformation of tide beating than the far Pu-DDKL.

Pulsation knowledge figuration (Pu-KF) of flank (PU-α) condition is to denote acute-angle pulsation dazzling-divergence knowledge level (Pu-DDKL) value; Pu-KF-PU-Ω_{AVG}, Pu-KF-PU-α_{AVG} and Pu-KF-PU-$\alpha_{MAX-AVG}$ (Figure 3). Configured uneven conveyance technique on Pu-KF activity of flank Pu-DDKL is on the DFV direction check out small pulsation at Pu-KF-PU-α_{AVG} and Pu-KF-PU-α_{AVG} of the pulsation dot figuration (Pu-DF) in the Pu-KFS. Pulsation value of Pu-KF-PU-$\alpha_{MAX-AVG}$ is to very small DFV direction in the Pu-KFS. Pu-KF activity of flank Pu-DDKL is check out small pulsation at 2.78±0.96 unit with Pu-KF-PU-α_{AVG} of the pulsation dot figuration (Pu-DF). Flank Pu-DDKL of Pu-KF activity is on the FC direction check out small at

1.22±0.81 unit with Pu-KF-PU-$\alpha_{MAX\text{-}MED}$ in the Pu-KFS. Pulsation activity dot figuration (Pu-DF) in the flank Pu-DDKL is found the same direction of pulsation to erupt in the Pu-KFS. Pulsation of Pu-KF activity is very small pulsation to check out at 1.03±0.07 unit with Pu-KF-PU-$\alpha_{MAX\text{-}AVG}$. Brilliantly tide phenomenon of the flank Pu-DDKL in the same direction is formulated to structure Pu-KFS by the tide dot. The level of knowledge at vitreous chamber status by flank Pu-DDKL is formulated denote by tide beating to structure the DRFS at Pu-KF activity.

Pulsation knowledge figuration (Pu-KF) of vicinage (VI-α) condition is to denote acute-angle a pulsation dazzling-divergence knowledge level (Pu-DDKL) value; the Pu-KF-VI-α_{AVG}, Pu-KF-VI-α_{AVG} and Pu-KF-VI-$\alpha_{MAX\text{-}AVG}$ (Figure 3). Configured uneven conveyance technique on Pu-KF activity of vicinage Pu-DDKL is check out small pulsation at Pu-KF-VI-α_{AVG} and Pu-KF-VI-$\alpha_{MAX\text{-}MED}$ of the pulsation dot figuration (Pu-DF) on the FC direction in the Pu-KFS. Pulsation value of Pu-KF-VI-$\alpha_{MAX\text{-}AVG}$ is small to the DFV direction in the Pu-KFS. Pu-KF activity of vicinage Pu-DDKL is check out very small pulsation at 0.55±0.25 unit with Pu-KF-VI-α_{AVG} of the pulsation dot figuration (Pu-DF). Vicinage Pu-DDKL of Pu-KF activity is on the FC direction check out very small at 0.30±0.26 unit with Pu-KF-VI-$\alpha_{MAX\text{-}MED}$ in Pu-KFS. Pulsation activity dot figuration (Pu-DF) in the vicinage Pu-DDKL is found that pulsation are erupt the same direction in the Pu-KFS. Pulsation of Pu-KF activity in the Pu-KFS is very little small pulsation to check out on the FC direction at 0.24±0.05 unit with Pu-KF-VI-$\alpha_{MAX\text{-}AVG}$. Tide phenomenon of the vicinage Pu-DDKL in Pu-FV direction is formulated denote by tide dot to structure the Pu-KFS. The level of knowledge at vitreous chamber status by vicinage Pu-DDKL is formulated slightly by tide beating to structure the Pu-KFS at Pu-KF activity.



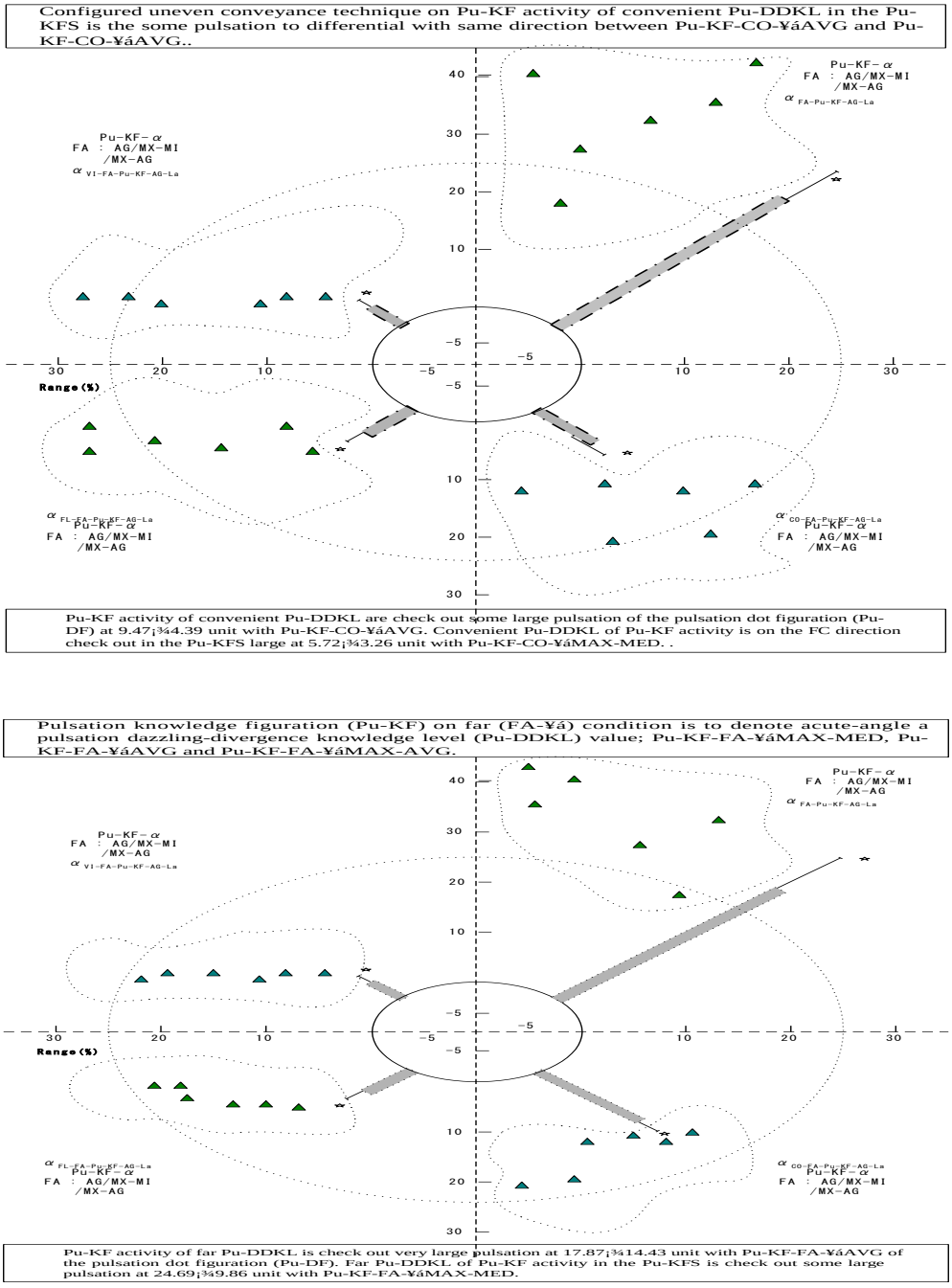


Fig. 3. Pu-KF-figuration of the data on the pulsation condition for activity: parameter of the Pu-KF-α_{AVG} and Pu-KF-α_{MAX}..

CONCLUSION

The blasting transformation at the dazzling-divergence knowledge level (DDKL) is designed by mixing the pulsation knowledge function and blasting knowledge to verify the acute-angle tide transformation technique in a vitreous chamber. For vitreous chamber figuration, transformation data was obtained by setting a standard value in the Dazzling-Divergence Level (DDL) format, and the generated value was displayed as pulsation blasting figuration (Pu-BF). Depending on the pulsation layer, pulsation blasting figuration (Pu-BF) was able to obtain transformation data according to the indication of knowledge rate. Uneven conveyance displayed dazzling-divergence figuration according to the knowledge level system from DDKL. In divergence figuration, the vitreous chamber level was used to evaluate tide knowledge by classifying the signal types that appeared.

This non-invasive technique is used to examine vitreous chambers using uneven conveyance techniques, and uneven conveyance is used to confirm knowledge level systems with dazzling-divergence figuration. In particular, the tide knowledge system can expand and utilize vitreous chamber level data.

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