1) In the eq(21) the author calculate the stokes parameters I, Q and U.

We need these parameters to determine the degree of polarisation in eq(24).

Actually, the degree of polarisation is defined as the ratio of intensity of the polarized part to the total intensity[1]:

$$\Pi \equiv \frac{I_{pol}}{I} = \frac{\sqrt{Q^2 + U^2 + V^2}}{I}$$

In our case V = 0,

Then, $\Pi = \frac{\sqrt{Q^2+U^2}}{I}$

2) The inclination of the line of sight with respect to relational axis and defined by the unit vector **n,** is denoted by angle $\{\xi_1 , \xi_2\}$ in spherical coordinate.

3) The physical interpretation of Eq[B7]:

The equation Eq[B7] is the result of the combination of the eq[21][2] and the eq[B1], eq[B2], eq[B3], eq[B4] and eq[B5].

It's possible to do this integral calculus by the assumption below:

- Use changement variable $(T = t - \frac{\cos(\theta)}{c})$,
- Approximate the emission as a flash moment $t = t_0$ with the duration of $\triangle t \ll \triangle R/c$ and $\triangle R \ll R$,
- Assume the whole shell emits uniformly during the flash.

These 2 last assumptions allow us to use the Dirac function and the Heaviside function (step function) because that's correspond with the physical meaning of the Dirac function.

[1] Geoge B.Rybicki, Alan P.Lightman, Radiative Processes in Astrophysics, Chapter 2 Basic theory of Radiation field, stokes parameters , page 69,

[2] In the paper: "phase resolved polarisation properties of the pulsar striped wind synchrotron emission.

After that, using the Lorentz transformation of the emissivity to the frame comoving with the shell and  synchrotron expression, then we obtain the equation (B7).