What follows is a list of all implemented formulas in both rac.py and rac_utils.py:

$$\lambda^{[2/1]}(\kappa) = \lambda_0 \frac{\kappa^2 + 2\alpha^2\kappa + \alpha^4 + \beta^2}{\alpha^4 + \beta^2 + 2\alpha^2\kappa} = \lambda_0 g(\alpha, \beta; \kappa)$$

$$\lambda^{[3/1]}(\kappa) = \lambda_0 \frac{(\kappa^2 + 2\alpha^2\kappa + \alpha^4 + \beta^2)(1 + \delta^2)}{\alpha^4 + \beta^2 + \kappa(2\alpha^2 + \delta^2(\alpha^4 + \beta^2)}$$

$$\lambda^{[3/2]}(\kappa) = \lambda_0 \frac{(\kappa^2 + 2\alpha^2\kappa + \alpha^4 + \beta^2)(1 + \delta^2)}{\alpha^4 + \beta^2 + \kappa(2\alpha^2 + \delta^2(\alpha^4 + \beta^2) + \varepsilon^2\kappa^2}$$

$$\lambda^{[4/2]}(\kappa) = \lambda_0 \frac{(\kappa^2 + 2\alpha^2\kappa + \alpha^4 + \beta^2)(\kappa^2 + 2\gamma^2\kappa + \gamma^4 + \delta^2)}{(\alpha^4 + \beta^2)(\gamma^4 + \delta^2) + \mu^2\kappa + \omega^2\kappa^2}$$

where $\mu^2 = 2(\alpha^2(\gamma^4 + \delta^2) + \gamma^2(\alpha^4 + \beta^2))$

$$\lambda^{[5/2]}(\kappa) = \lambda_0 \frac{(\kappa^2 + 2\alpha^2\kappa + \alpha^4 + \beta^2)(\kappa^2 + 2\gamma^2\kappa + \gamma^4 + \delta^2)(1 + \varepsilon^2\kappa)}{(\alpha^4 + \beta^2)(\gamma^4 + \delta^2) + \mu^2\kappa + \omega^2\kappa^2}$$

$$\lambda^{[5/3]}(\kappa) = \lambda_0 \frac{(\kappa^2 + 2\alpha^2\kappa + \alpha^4 + \beta^2)(\kappa^2 + 2\gamma^2\kappa + \gamma^4 + \delta^2)(1 + \varepsilon^2\kappa)}{(\alpha^4 + \beta^2)(\gamma^4 + \delta^2) + \mu^2\kappa + \zeta^2\kappa^2 + \omega^2\kappa^3}$$

where $\mu^2 = 2\big(\alpha^2(\gamma^4 + \delta^2) + \gamma^2(\alpha^4 + \beta^2)\big) + \varepsilon^2(\alpha^4 + \beta^2)(\gamma^4 + \delta^2)$

$$E_r = \beta^2 - \alpha^4$$

$$\Gamma = 4\alpha^2|\beta|$$

$$\chi^2 = \frac{1}{N}\sum_{i=1}^{N} |\lambda_0 g(\alpha, \beta; \kappa_i) - \lambda_i|^2$$

What follows is a list of essential references:

1) J. Horacek, I. Paidarova, and R. Curick. J. Chem. Phys. **143**, 184102 (2015); https://doi.org/10.1063/1.4935052
2) J. Horacek, I. Paidarova, and R. Curick. Correction Paper (2016)
3) R. Curick. Private Communication (2019)
4) R. Curick. Private Communication (2020)