$$\gamma_{n-1,j} = \beta_{j,n}$$
$$\gamma_{n-2,j} = 2\beta_{j,n} \cdot \gamma_{n-1,j} - \gamma_{n,j} \tag{17}$$

Hence:

$$\gamma_{n-m,j} = T_m\left(\beta_{j,n}\right)$$

or (18)

$$\gamma_{i,j} = T_{n-i}\left(\beta_{j,n}\right)$$

Since for Chebyshev polynomials at any values p, x the following identities are satisfied:

$$T_p(-x) = (-1)^p T_p(x) \tag{19}$$

and

$$T_p(\cos x) = \cos px \tag{20}$$

the coefficients $\gamma_{i,j}$ may be calculated as:

$$\gamma_{i,j} = (-1)^{n-i} \cos\left[(n-i)\frac{2j-1}{2n} \cdot \Pi\right] \tag{21}$$

Finally, the general solution (6) for SC2 yields:

$$Q_i = \sum_{j=1}^{n} C_j (-1)^{n-i} \cos\left[(n-i)\frac{2j-1}{2n} \cdot \Pi\right] e^{-\left[2+2\cos\left(\frac{2j-1}{2n}\cdot\Pi\right)\right]kt} \tag{22}$$