Baikov parametrization

Under the integration variable change

$$(l_1, \cdots, l_L) \mapsto (D_1, \cdots, D_N),$$

we have

$$I(\vec{n}) \sim \int \frac{dD_1 \cdots dD_N}{D_1^{n_1} \cdots D_N^{n_N}} P^{\frac{d-L-E-1}{2}}$$

where P is the Jacobi determinant of this variable change

$$P = \det\left[q_i \cdot q_j\right](D_1, \cdots, D_N)$$

that is, the determinant of scalar products expressed by denominators, and this P is called the Baikov polynomial. The integration domain is determined by the zeros of P.

P and the integration domain do not depend on $n_1, \cdots, n_N$, so the family of integrals are characterized by a polynomial P.