Algorithm 1: Pseudo-code of computeQ() function

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for *(i=0; i < numK; i + = unroll_factor)* **do**
    HLS_LOOP_PIPELINE
    for *(i = 0; i < unroll_factor; i++)* **do**
        HLS_LOOP_UNROLL
        read from PLMs into registers
          kx[i],ky[i],kz[i],phiR[i],phiI[i]
    end
    for *(i = 0; i < unroll_factor; i++)* **do**
        HLS_LOOP_UNROLL
        compute Qracc_p[i], Qiacc_p[i]
    end
    for *(i = 0; i < unroll_factor; i++)* **do**
        HLS_LOOP_UNROLL
        Qracc += Qracc_p[i]
        Qiacc += Qiacc_p[i]
    end
end