# Appendix A: Commonly used radial basis function (RBF) for surrogate response surface construction

**Table A.1.** Basis functions for RBF $ψ\left(·\right)$ response surface methods (RSMs).

|  |  |
| --- | --- |
| Method | Basis function |
| Linear | $ψ(r)=cr$  |
| Cubic | $ψ(r)=(c+r)^{3}$  |
| Gaussian | $ψ(r)=e^{–cr^{2}}$  |
| Multi-quadratic | $ψ(r)=(r^{2}+c^{2})^{\frac{1}{2}}$  |

Note: $r=\left‖X\_{i}-X\_{j}\right‖\_{2}$ is Euclidian distance between $X\_{i}$ and $X\_{j}$ and $c$ is a constant.