三点二次插值法

计算机153 黄帅彬 153150

%Φ(t)=1-t\*exp(-t^2),区间[0,1],三点二次插值

esp = 0.01;

alpha1 = 0.1;alpha2 = 0.5;alpha3 = 0.95; %alpha三点赋初值

count =0;

while 1

fai1 = 1-alpha1\*exp(-alpha1^2);

fai2 = 1-alpha2\*exp(-alpha2^2);

fai3 = 1-alpha3\*exp(-alpha3^2);

minAlpha = 1/2\*((alpha2^2-alpha3^2)\*fai1 + (alpha3^2-alpha1^2)\*fai2 + (alpha1^2-alpha2^2)\*fai3)/((alpha2-alpha3)\*fai1 + (alpha3-alpha1)\*fai2 + (alpha1-alpha2)\*fai3);

minFai = 1-minAlpha\*exp(-minAlpha^2);

if minAlpha>alpha2

if minFai <= fai2

alpha1 = alpha2;

alpha2 = minAlpha;

fai1 = fai2;

fai2 = minFai;

else

alpha3 = minAlpha;

fai3 = minFai;

end

else

if minFai <= fai2

alpha3 = alpha2;

alpha2 = minAlpha;

fai3 = fai2;

fai2 = minFai;

else

alpha1 = minAlpha;

fai1 = minFai;

end

end

count = count+1;

%判断是否收敛（步骤5）

if abs(alpha1-minAlpha) < esp

break;

end

end

minAlpha

minFai

输出结果：0.7071以及0.5711