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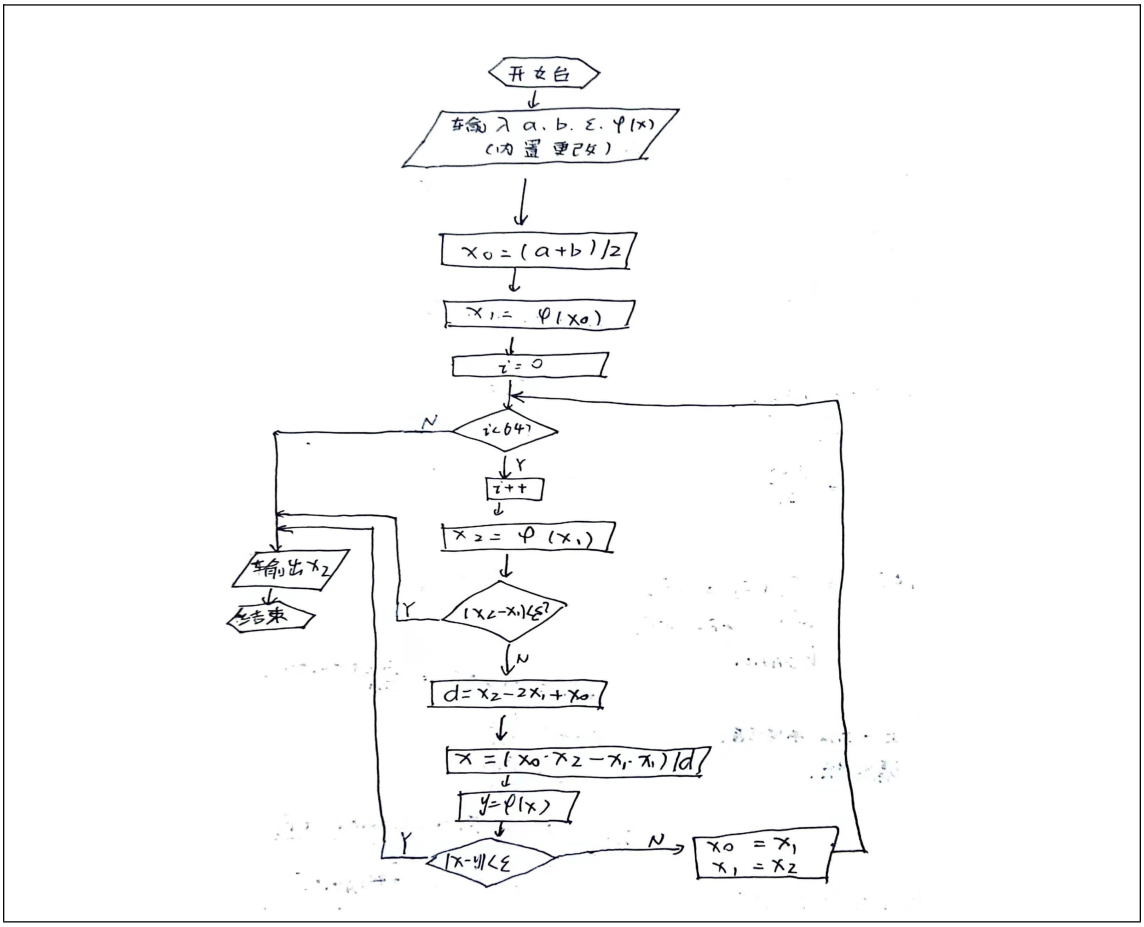
算法框图：



代码部分：

```
#include<stdio.h>
#include<math.h>
#define a 0
#define b 1
#define e 1.e-15
//此处直接 define 了 a/b/e，具体可根据求解情况改变
double fai(double x) {
	//定点法求 x=0.25*exp(x)，具体可根据求解情况设定
	return 0.25 * exp(x);
}
double function(){
	//封装好的埃特金加速法，调用 fai()函数
	int i;
	double x0 = (a + b) / 2, x1, x2, x, y, d;
	x1 = fai(x0);
	for (i = 0; i < 64; i++) {
		x2 = fai(x1);
		if (fabs(x2 - x1) < e) {
```

```
                printf("Totally %d times.\n", i);
                printf("We got the answer: %.16lf", x2);
                return 1;
            }
            d = x2 - 2 * x1 + x0;
            if (fabs(d) > 1.e-20) {
                x = (x0 * x2 - x1 * x1) / d;
                y = fai(x);
                if (fabs(x - y) < e) {
                    printf("Totally %d times.\n", i);
                    printf("We got the answer: %.16lf", x2);
                    return 1;
                }
            }
            x0 = x1;
            x1 = x2;
        }
}

int main() {
    function();
    return 0;
}
```

测试结果：

当采用区间[0,1]，收敛容差为 1e-15，采用 fai(x)为 0.25*exp(x)时，得到以下结果。

```
#define a 0
#define b 1
#define e 1.e-15
//此处直接define了a/b/e，具体可改
double fai(double x) {
    //定点法求 x=0.25*exp(x) 具体fai(x)可根据实际情况更改
    return 0.25 * exp(x);
}
```

```
Totally 31 times.
We got the answer: 0.3574029561813884
--------------------------------
Process exited after 0.1261 seconds with return value 0
请按任意键继续. . .
```