

阵列接收的快拍数为200。进行50次独立Monte-Carlo实验,图3a和3b分别SNR=5dB时JDFO-DOA矩阵方法和FO-DOA矩阵方法的估计结果,图3c和3d分别SNR=15 dB时JDFO-DOA矩阵方法和FO-DOA矩阵方法的估计结果。可以看出,入射信号 $s_1(t)$ 和 $s_2(t)$ 的 α 角相同, $s_2(t)$ 和 $s_3(t)$ 的 β 角相同,FO-DOA矩阵方法已经失效,而JDFO-DOA矩阵法能够获得较好的估计。

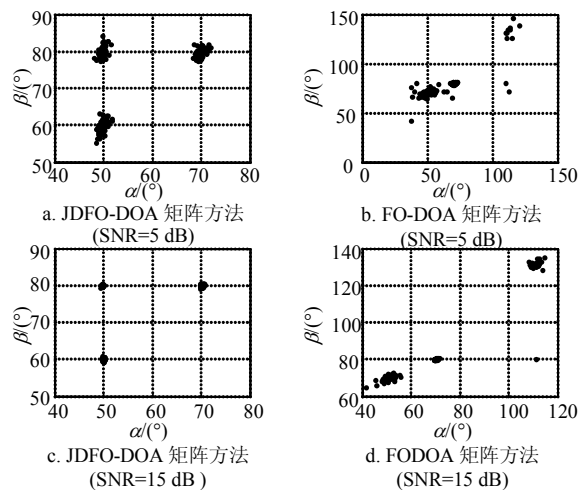


图3 3个信号的估计结果

5 结论

本文提出了一种新的适合任意高斯噪声环境下的高分辨二维DOA估计方法——JDFO-DOA矩阵方法。该方法不仅保持了原DOA矩阵方法无需二维谱峰搜索和参数配对等优点,还适用于任意高斯噪声环境下的存在一维角兼并的情况。其计算量和原算法基本相当,最多可以估计 M 个信号源。仿真结果表明其比FO-DOA矩阵方法获得了更好的二维DOA估计。

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