Sweat rate correction for levodopa

```
fr=[0 50 100 200 300 500]; % input flow rate
curr=[2.3 2.4 3.0 3.01 3.26 3.35]; % measured current
a=polyfit(fr,curr,3);
x=0:1:500;
y=a(1)*x.^3+a(2)*x.^2+a(3)*x+a(4);
figure(1)
title('detection')
set(gcf,'color','w');
set(gcf,'Position',[200 200 1000 800]);
set(subplot(3,2,2),'Position',[0.07 0.55 0.23 0.1]);
plot(fr, curr, 'ro')
hold on
plot(x,y,'k--')
set(gca,'FontSize',14)
xlim([0 500])
ylim([0 4])
ylabel('Current (nA)')
xlabel('Flow rate (nL/min)')
F =@(x) a(4) + a(3)*x + a(2)*x.^2 + a(1)*x.^3; % function relating flow rate
and current
x_cal = 0:0.5:500; % to get points for a calib curve
a1=xlsread('Ldopa_SR_current_correction',1);
xtarget=5*a1(1:28,5); % data to look for correction points, measured sweat
rate, 5x to normalize the sweat rate to per cm^2
tx=a1(1:28,4);% time at which sweat rate is measured
xt1=zeros(); % to designate sweat rates into # of points matching # of
current points
ytarget=10^9*a1(175:1755,2); % measured current
ty=a1(175:1755,1); % time at which current is measured
windowSize = 120;
b = (1/windowSize)*ones(1,windowSize);
a = 1;
ytarget=filter(b,a,ytarget); % filtering data
y1target=zeros(); % to designate new corrected current
Y=numel(ty);
n=1;
for h=1:numel(tx)
I=find(ty<=tx(h));
j=numel(I)-numel(xt1);
xt1(n+1:n+j)=xtarget(h);
n=n+j;
end
xt1(1)=xtarget(1);
for u=1:numel(ytarget)
y1target(u)=ytarget(u)+F(xt1(1))-F(xt1(u));
end
y1target'; % corrected current
figure(2)
set(gcf,'color','w');
set(gcf,'Position',[200 200 1000 800]);
set(subplot(3,2,5),'Position',[0.4 0.55 0.23 0.1]);
plot(1/60*ty(300:end-35),ytarget(300:end-35),1/60*ty(300:end-
35),y1target(300:end-35)-0.8) % -0.8 is to correct it to 0 flow rate
set(gca,'FontSize',12)
legend('before','after')
legend box off
```

```
xlim([0 30])
ylim([0 4])
yticklabels({'0','1','2','3'})
yticks([0 1 2 3])
xlabel('Time (min)')
xticks([0 5 10 15 20 25 30])
ylabel('Current (nA)')
set(subplot(3,2,5),'Position',[0.4 0.64 0.23 0.1]);
plot(1/60*tx(10:end-1),xtarget(10:end-1)/1000/5,'r-','Linewidth',1); % sweat
rate is divided by 5 to get back the original data
set(gca,'FontSize',12)
text(45,2.1,'Secretion rate','FontSize',12)
xlim([0 30])
ylim([0 0.3])
yticklabels({'0', '0.1','0.2','0.3'})
yticks([0 0.1 0.2 0.3])
xticklabels({ })
xticks([0 5 10 15 20 25 30])
ylabel({'Sweat rate'; '(\muL/mincm^2
```