

**Graph Theoretical Analysis:
Applications**

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Applications to Bulimia Nervosa

Binge Eating
Self-induced vomiting
Bulimia Nervosa
Self-induced vomiting
Binge Eating

2

Applications to Bulimia Nervosa

Graph theoretical analysis

3

Applications to Bulimia Nervosa

Wang et al., 2017.
J Psychiatry Neurosci

A wide range of density thresholds ($10\% \leq \text{density} \leq 34\%$, step of 1%) was chosen to allow prominent small-world properties in brain networks to be observed, similar to a previous study. For each metric, the area under the curve (AUC) for this density range was calculated as representative to avoid the results being dependent on a few densities.

4

Applications to Bulimia Nervosa

Wang et al., 2017.
J Psychiatry Neurosci

Between-group differences in nodal strength (nodal degree or efficiency) and their associations with clinical variables in patients with bulimia nervosa.

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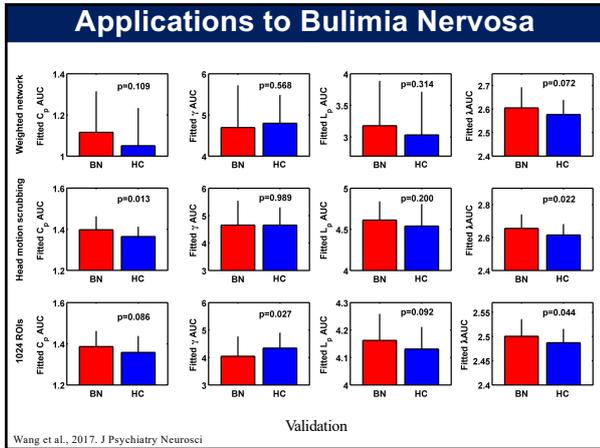
Applications to Bulimia Nervosa

Wang et al., 2017.
J Psychiatry Neurosci

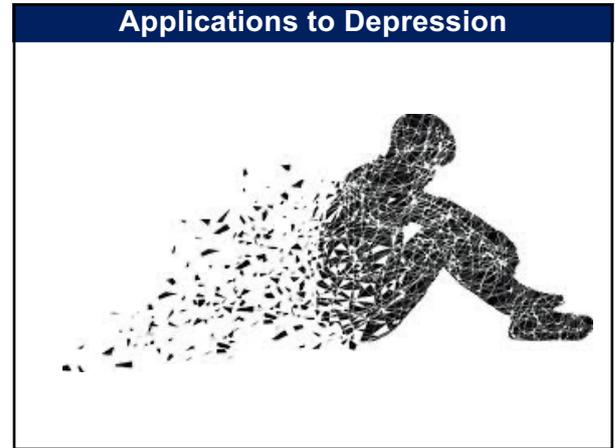
Between-group differences in whole-brain functional connectivity (NBS)

Division	Primary SM	Unimodal	Heteromodal	Paralimbic	Limbic	Subcortical
BN > NC	4 (2%)	0	0	0	0	0
NC > BN	0	1 (1%)	1 (1%)	1 (1%)	1 (1%)	1 (1%)
Primary SM	4 (2%)	0	0	0	0	0
Unimodal	0	1 (1%)	1 (1%)	1 (1%)	1 (1%)	1 (1%)
Heteromodal	0	0	1 (1%)	1 (1%)	1 (1%)	1 (1%)
Paralimbic	0	0	0	1 (1%)	1 (1%)	1 (1%)
Limbic	0	0	0	0	1 (1%)	1 (1%)
Subcortical	0	0	0	0	0	1 (1%)

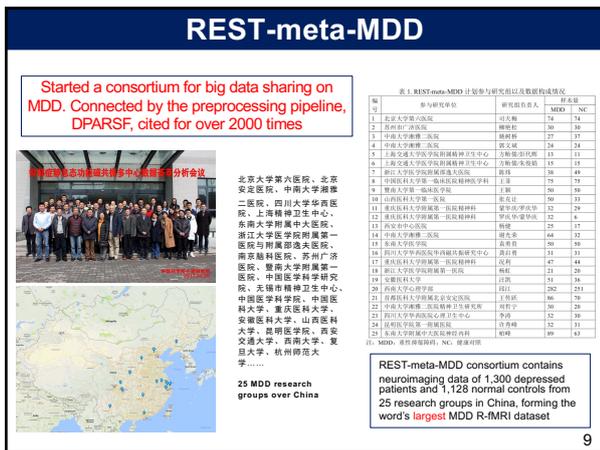
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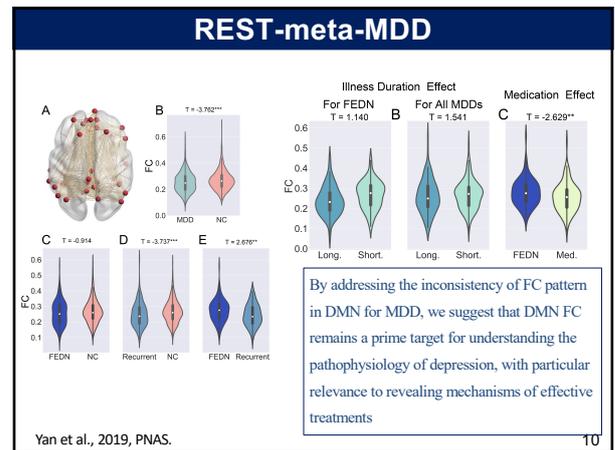
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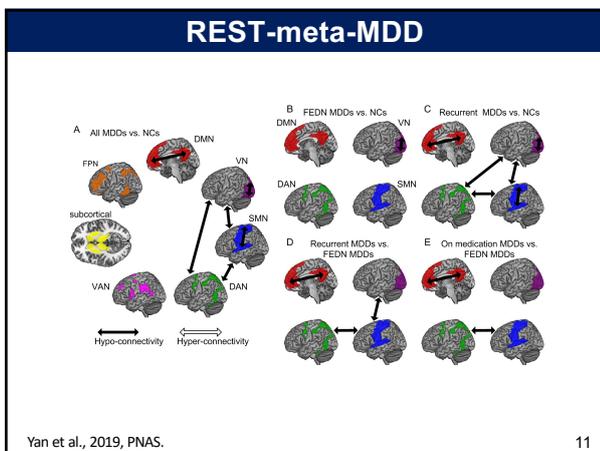
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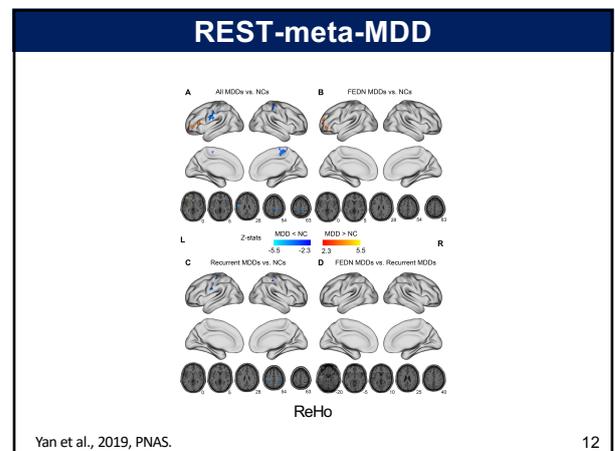
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REST-meta-MDD

PNAS



Reduced default mode network functional connectivity in patients with recurrent major depressive disorder

Chao-Gan Yan^{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,115,116,117,118,119,120,121,122,123,124,125,126,127,128,129,130,131,132,133,134,135,136,137,138,139,140,141,142,143,144,145,146,147,148,149,150,151,152,153,154,155,156,157,158,159,160,161,162,163,164,165,166,167,168,169,170,171,172,173,174,175,176,177,178,179,180,181,182,183,184,185,186,187,188,189,190,191,192,193,194,195,196,197,198,199,200,201,202,203,204,205,206,207,208,209,210,211,212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227,228,229,230,231,232,233,234,235,236,237,238,239,240,241,242,243,244,245,246,247,248,249,250,251,252,253,254,255,256,257,258,259,260,261,262,263,264,265,266,267,268,269,270,271,272,273,274,275,276,277,278,279,280,281,282,283,284,285,286,287,288,289,290,291,292,293,294,295,296,297,298,299,300,301,302,303,304,305,306,307,308,309,310,311,312,313,314,315,316,317,318,319,320,321,322,323,324,325,326,327,328,329,330,331,332,333,334,335,336,337,338,339,340,341,342,343,344,345,346,347,348,349,350,351,352,353,354,355,356,357,358,359,360,361,362,363,364,365,366,367,368,369,370,371,372,373,374,375,376,377,378,379,380,381,382,383,384,385,386,387,388,389,390,391,392,393,394,395,396,397,398,399,400,401,402,403,404,405,406,407,408,409,410,411,412,413,414,415,416,417,418,419,420,421,422,423,424,425,426,427,428,429,430,431,432,433,434,435,436,437,438,439,440,441,442,443,444,445,446,447,448,449,450,451,452,453,454,455,456,457,458,459,460,461,462,463,464,465,466,467,468,469,470,471,472,473,474,475,476,477,478,479,480,481,482,483,484,485,486,487,488,489,490,491,492,493,494,495,496,497,498,499,500,501,502,503,504,505,506,507,508,509,510,511,512,513,514,515,516,517,518,519,520,521,522,523,524,525,526,527,528,529,530,531,532,533,534,535,536,537,538,539,540,541,542,543,544,545,546,547,548,549,550,551,552,553,554,555,556,557,558,559,560,561,562,563,564,565,566,567,568,569,570,571,572,573,574,575,576,577,578,579,580,581,582,583,584,585,586,587,588,589,590,591,592,593,594,595,596,597,598,599,600,601,602,603,604,605,606,607,608,609,610,611,612,613,614,615,616,617,618,619,620,621,622,623,624,625,626,627,628,629,630,631,632,633,634,635,636,637,638,639,640,641,642,643,644,645,646,647,648,649,650,651,652,653,654,655,656,657,658,659,660,661,662,663,664,665,666,667,668,669,670,671,672,673,674,675,676,677,678,679,680,681,682,683,684,685,686,687,688,689,690,691,692,693,694,695,696,697,698,699,700,701,702,703,704,705,706,707,708,709,710,711,712,713,714,715,716,717,718,719,720,721,722,723,724,725,726,727,728,729,730,731,732,733,734,735,736,737,738,739,740,741,742,743,744,745,746,747,748,749,750,751,752,753,754,755,756,757,758,759,760,761,762,763,764,765,766,767,768,769,770,771,772,773,774,775,776,777,778,779,780,781,782,783,784,785,786,787,788,789,790,791,792,793,794,795,796,797,798,799,800,801,802,803,804,805,806,807,808,809,810,811,812,813,814,815,816,817,818,819,820,821,822,823,824,825,826,827,828,829,830,831,832,833,834,835,836,837,838,839,840,841,842,843,844,845,846,847,848,849,850,851,852,853,854,855,856,857,858,859,860,861,862,863,864,865,866,867,868,869,870,871,872,873,874,875,876,877,878,879,880,881,882,883,884,885,886,887,888,889,890,891,892,893,894,895,896,897,898,899,900,901,902,903,904,905,906,907,908,909,910,911,912,913,914,915,916,917,918,919,920,921,922,923,924,925,926,927,928,929,930,931,932,933,934,935,936,937,938,939,940,941,942,943,944,945,946,947,948,949,950,951,952,953,954,955,956,957,958,959,960,961,962,963,964,965,966,967,968,969,970,971,972,973,974,975,976,977,978,979,980,981,982,983,984,985,986,987,988,989,990,991,992,993,994,995,996,997,998,999,1000}

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Yan, et al., 2019. PNAS
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REST-meta-MDD

PNAS



Reduced default mode network functional connectivity in patients with recurrent major depressive disorder

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Lianne Schmaal
Chair of ENIGMA-MDD

ENIGMA MDD: seven years of global neuroimaging studies of major depression through worldwide data sharing

Schmaal et al. 2019. Translational Psychiatry

Yan, et al., 2019. PNAS
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REST-meta-MDD







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Yan, et al., 2019. PNAS
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Proposals

1	用静息态功能磁共振研究抑郁症小世界网络属性的异常	浙江大学医学院附属第一医院
2	抑郁症大脑功能连接模式研究	湖南一医院
3	抑郁症神经网络连接模式研究	湖南一医院
4	抑郁症神经网络连接模式研究	湖南一医院
5	基于静息态影像和深度学习方法的抑郁症预测研究	湖南一医院
6	抑郁症神经网络连接模式研究	湖南一医院
7	抑郁症神经网络连接模式研究	湖南一医院
8	抑郁症神经网络连接模式研究	湖南一医院
9	Abnormal interhemispheric connectivity in major depressive disorder: a voxel mirrored homotopic connectivity analysis of 2428 individuals from REST-meta-MDD working group	上海精神卫生中心
10	抑郁症神经网络连接模式研究	湖南一医院
11	抑郁症神经网络连接模式研究	湖南一医院
12	抑郁症神经网络连接模式研究	湖南一医院
13	抑郁症神经网络连接模式研究	湖南一医院
14	不同年龄段抑郁症患者的脑功能影像学研究	湖南一医院
15	抑郁症神经网络连接模式研究	湖南一医院
16	MDD的神经网络连接模式研究	湖南一医院
17	基于图论的时间序列网络有效连接分析	湖南一医院
18	抑郁症神经网络连接模式研究	湖南一医院
19	抑郁症神经网络连接模式研究	湖南一医院
20	基于图论的时间序列网络有效连接分析	湖南一医院
21	抑郁症神经网络连接模式研究	湖南一医院
22	抑郁症神经网络连接模式研究	湖南一医院
23	The structural and functional alterations of brain in MDD with gastrointestinal symptoms: Evolution of Brain Network in Depression: An Age- and Illness Duration-associated Cross-sectional Study	湖南一医院
24	Abnormal resting-state functional connectivity of nucleus accumbens in patients with major depressive disorder	湖南一医院
25	Resting-State Functional Connectivity of the Habenula in Depressive Disorder Patients With and Without Suicide-Related Behaviors	湖南一医院
26	Baseline time variability and co-activation pattern based evaluation of severity in patient with MDD	湖南一医院
27	Common and different patterns of altered functional activities in drug-naïve and treated first-episode depressive patients	湖南一医院
28	Relationship of brain structure of MDD patients and metabolome expression in classical rodent models of MDD	湖南一医院

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REST-meta-MDD Progress

PNAS



Reduced default mode network functional connectivity in patients with recurrent major depressive disorder

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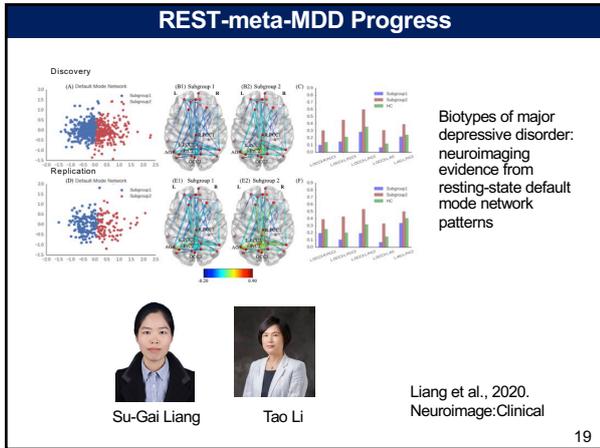
Yi-Cheng Long

Disrupted Dynamic Functional Brain Networks in Major Depressive Disorder: Evidence from A Multi-site Resting-state fMRI Study

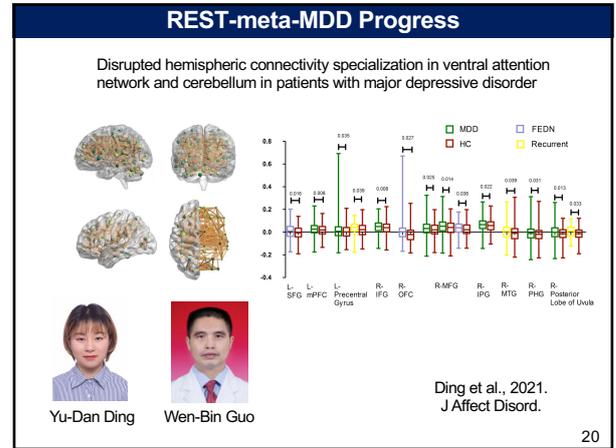
Long et al., 2020. NeuroImage: Clinical

Yan, et al., 2019. PNAS
14⁴

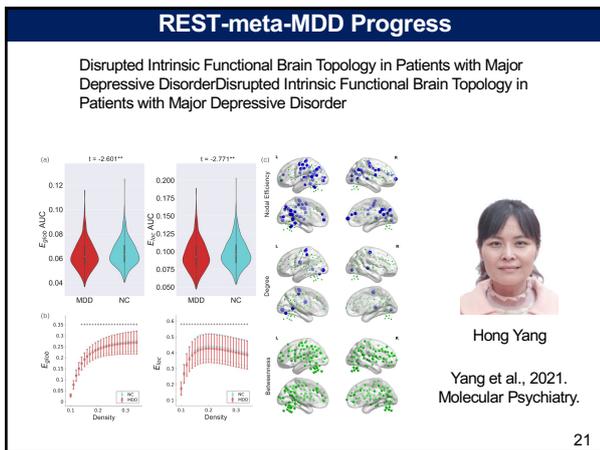
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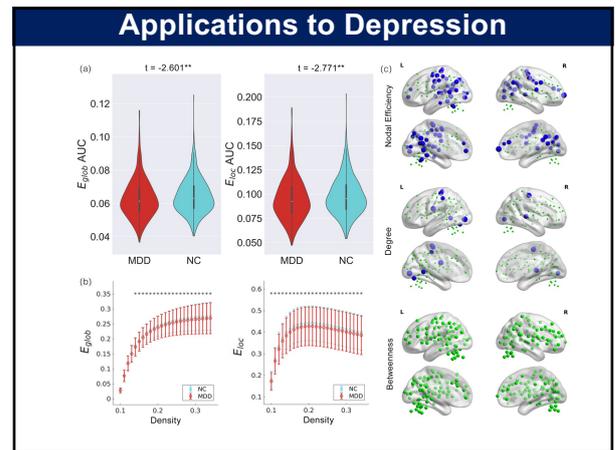
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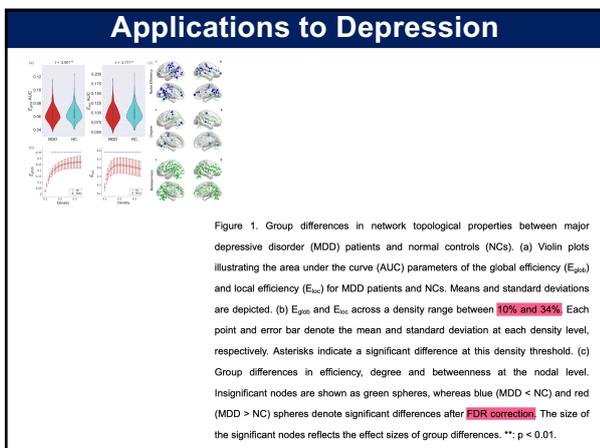
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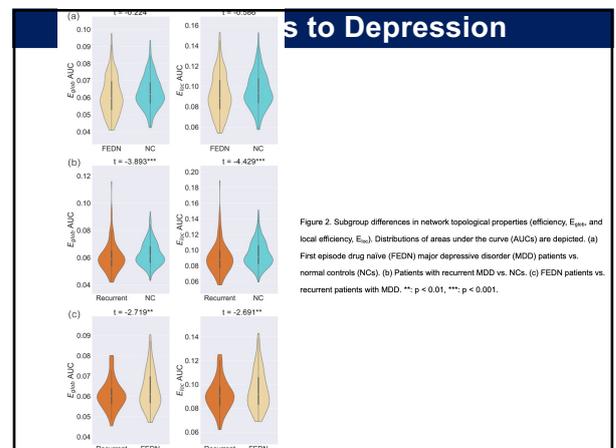
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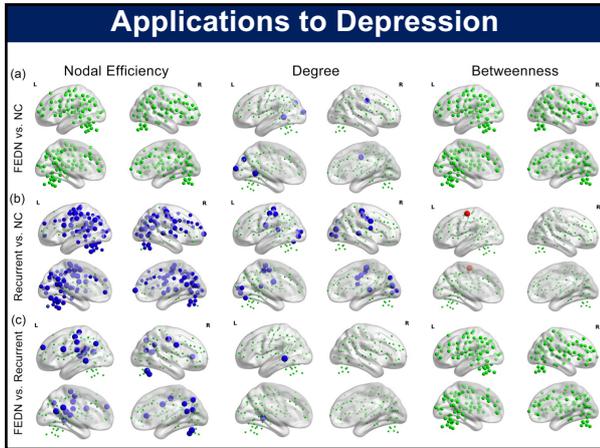
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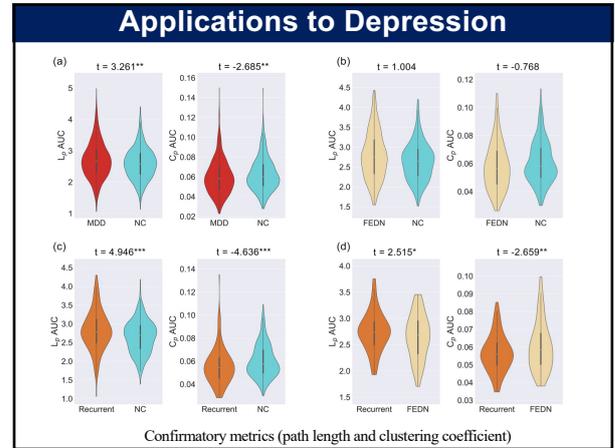
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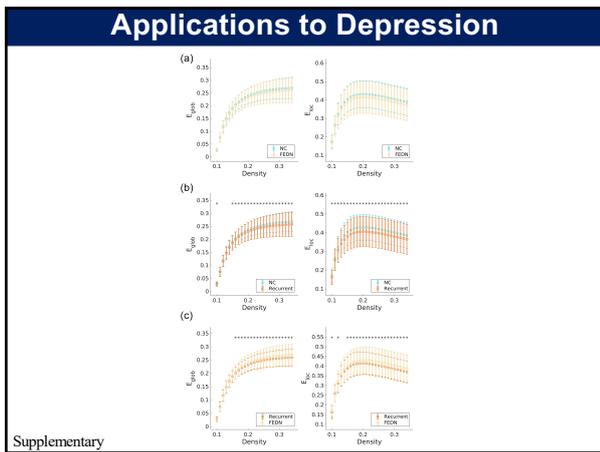
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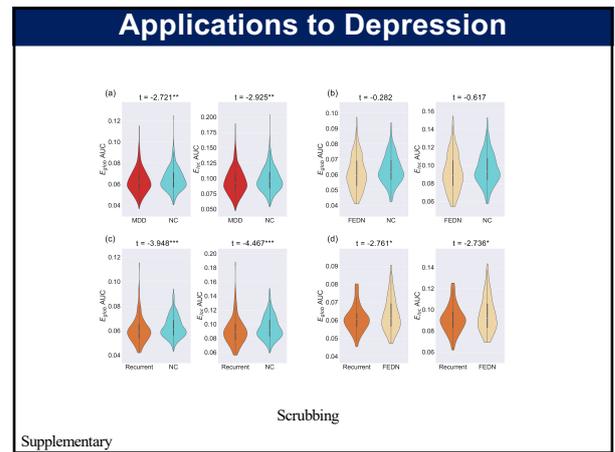
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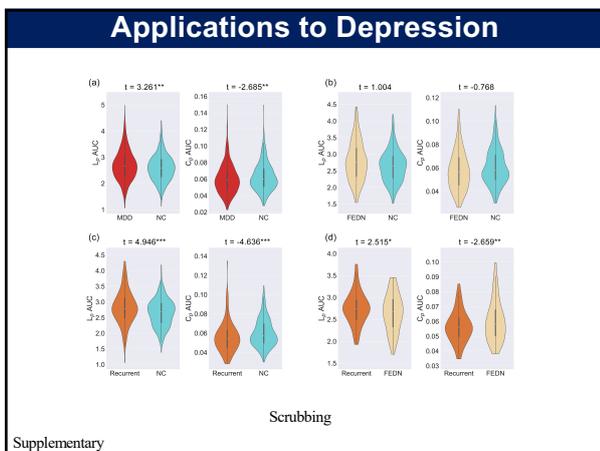
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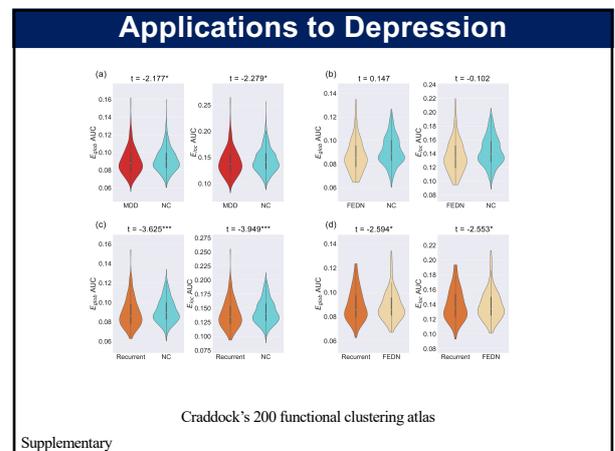
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Further Help



The R-fMRI Course V3.0

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http://rfmri.org
The R-fMRI Lab

International Big-Data Center for Depression Research
Institute of Psychology, Chinese Academy of Sciences

http://rfmri.org/Course



http://rfmri.org/wiki

 The R-fMRI Journal Club

 Official Account: RFMRILab

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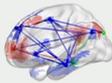
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DPABI/DPABISurf/DPARSF特训营



**第九届DPABI/DPABISurf/DPARSF
脑影像基础特训营 (云端) 通知**

2021.3.27~3.29



**第一届DPABISurf/DPABINet
脑网络进阶特训营 (北京现场) 通知**

2021.4.24~4.26

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DPABISurf皮层数据预处理业务



特训营学员：99元/例次

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The R-fMRI Lab

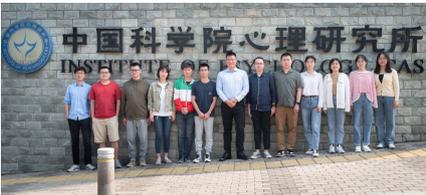


WeChat Official Account: RFMRILab

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Thanks for your attention!

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