Patent Owner Caltech's Oral Argument
April 19, 2018

Apple, Inc. v. California Institute of Technology.
Case No. IPR2017-00219

CALTECH - EXHIBIT 2038
Apple Inc. v. California Institute of Technology
IPR2017-00219

Instituted Grounds

IPR2017-00219: Patent No. 7,116,710

Ground	Claims	Basis	Prior Art
1	1-8, 11-14	103	Luby and Divsalar
2	15-17, 19-22, 24-33	103	Luby, Divsalar and Luby97

Neither Luby nor Divsalar disclose irregular repetition of information bits

POR 9-10, 19-23, 25-26; Sur. 1-3

> generally. Rather, Luby's irregularity specifically referred to irregular *graphs*, in which the degree of the *codeword* is irregular. Our 1998 paper did not consider regular or irregular repetition of information bits; indeed, Luby does not refer to information bits at all.

MM ¶63

> 414. As explained above, Divsalar teaches all the limitations recited by claim 1, except for the irregularity of the "first encoding" step. As also explained

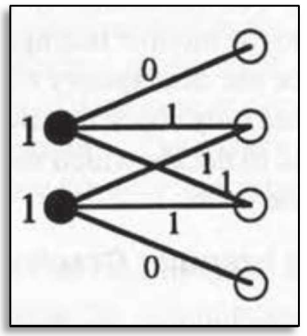
EX1206 (Davis Decl.) ¶414

POR 9-10, 19-23, 25-26; Sur. 1-3

Luby's irregular bipartite graphs

"[W]e refer to the nodes on the *left* and the right sides of a bipartite graph as its *message* nodes and *check* nodes respectively. … [T]he *bits of a codeword are indexed by the message nodes*."

EX1204, p. 250



EX1204, p. 253

- "An irregular bipartite graph is simply a bipartite graph where different codeword bits are used in a different number of check equations." MM ¶79.
  - Regular Gallager code: message nodes have same # of edges.
  - Irregular Gallager code: some message nodes have different # of edges.

POR 19-23, 30-32; Sur. 1-3

Luby does not disclose irregular repetition of information bits

- "[O]ur use of the term 'message nodes' in a bipartite graph refers to bits in the *codeword*, that is, the *output* of the encoder, whereas Divsalar's repetition is performed on information bits, that is, the *input* of the encoder." MM ¶82.

> We do not perform an actual encoding, but instead for each trial use an initial message consisting entirely of zeroes.

EX1204, p. 256

- No basis to assume Luby's code is systematic: "[Luby's] codewords do not even include information bits." MM ¶77.

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