

Эдуард Степанович Горкунов



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25 октября 2020 г. на 76 году жизни скончался доктор технических наук, академик РАН Эдуард Степанович Горкунов.

Э.С. Горкунов родился 21 января 1945 года в Николаеве. В 1966 году окончил Тюменский педагогический институт. В 1966-1994 годах работал в Тюменском индустриальном институте, Уральском государственном университете, Физико-техническом институте УрО РАН. С 1989 по 2001 год - в Институте физики металлов УНЦ АН СССР. С 1994 года был директором Института машиноведения УрО РАН, а в последние годы - главным научным сотрудником Лаборатории технической диагностики этого института.

Эдуард Степанович выполнил цикл фундаментальных исследований по установлению связей процессов перемагничивания со структурным состоянием и прочностными характеристиками основных классов металлов. Внес существенный вклад в разработку теоретических основ магнитной структуроскопии и технической диагностики элементов конструкций. Им и сотрудниками возглавляемых им подразделений были разработаны основы анализа устойчивости магнитных состояний к воздействиям электромагнитного поля, деформаций и температуры; развита концепция оценки остаточного ресурса ферромагнитных материалов с привлечением новых явлений пьезодинамической намагниченности, магнитоупругой акустической эмиссии и электромагнито-акустического преобразования. Созданы магнитные и электромагнитные методы неразрушающего контроля структуры и прочностных характеристик проката, термически упрочненных

изделий машиностроения, оценки качества изделий порошковой металлургии, фазового состава, степени деградации структуры металла в элементах конструкций в процессе эксплуатации, абразивной износостойкости изделий из высокоуглеродистых сталей, режущей способности твердосплавного инструмента, а также вихретоковые методы оценки износа трибоконтактов скольжения. Разработана методика определения ресурса работы трибосопряжения скольжения на основе анализа размеров и магнитных характеристик частиц износа в смазке. Непосредственно на промышленных предприятиях были разработаны алгоритмы расчетов первичных преобразователей.

При непосредственном участии Э.С. Горкунова была создана большая серия приборов: для определения структурного состояния и механических свойств холодно- и горячекатаного проката; контроля структурного состояния и прочностных характеристик объемно термически обработанных стальных и чугуновых изделий (отжиг, нормализация, закалка, отпуск и старение); определения фазового состава, пористости, выявление парамагнитных и ферромагнитных участков с различающимися физическими свойствами в литых, металлокерамических изделиях и сварных соединениях; для оценки напряженного состояния и его изменений в материалах и элементах конструкций после термической обработки и пластической деформации, а также в процессе эксплуатации; выявления деградации структуры и механических свойств (оценка остаточного ресурса) в результате различных внешних воздействий; контроля структуры, физико-механических свойств и толщины слоев поверхностно упрочненных изделий различными методами (закалка ТВЧ, химико-термическая обработка, упрочнение концентрированными потоками энергии, виброупрочнение, обезуглероживание в стали и отбел в чугуне); для сортировки изделий по марке, качественной оценки содержания основных легирующих элементов.

В последнее время под руководством Эдуарда Степановича развивалось новое научное направление, связанное с оценкой поврежденности металлов и разработкой методов расчета остаточного ресурса элементов конструкций с использованием неразрушающих физических методов, что очень актуально для обеспечения безопасности работы стареющего оборудования. Разработан и изготовлен оригинальный портативный измерительно-вычислительный комплекс для определения прочностных свойств материалов элементов конструкций, который успешно использовался для обследования термонапряженного состояния и запаса прочности аппарата радиохимического производства ПО «Маяк», а также при проведении контрольных испытаний оболочечных и силовых элементов конструкции баллистических ракет в Государственном ракетном центре им. академика В.П. Макеева.

В 1977 году Эдуард Степанович Горкунов защитил кандидатскую диссертацию: «Исследование статистических и динамических магнитных свойств закаленных и отпущенных конструкционных сталей при различных режимах перемангничивания». В 1992 году ему было присвоено звание профессора, член-корреспондент РАН с 1997 года, академик РАН с 2011 года по Отделению энергетики, машиностроения, механики и процессов управления. Он читал курсы лекций в Тюменском индустриальном институте, Удмуртском государственном университете, Ижевском механическом институте. В последнее время читал специальные курсы лекций в Уральском федеральном университете им. Б.Н. Ельцина. Был заместителем главного редактора академического журнала «Дефектоскопия», членом редколлегии журналов «Контроль. Диагностика», «Транспорт Урала», «Учёные записки Комсомольского-на-Амуре государственного технического университета», болгарского журнала «Научни известия на НТСМ».

Эдуард Степанович был заместителем председателя Уральского отделения РАН; членом Совета по техническим наукам при Президиуме РАН, членом Координационного совета по техническим наукам при Президиуме РАН, членом бюро объединенного совета по математике, механике и информатике при Президиуме УрО РАН. Он также был заместителем председателя Научного совета РАН по проблеме «Неразрушающие физические методы контроля», вице-президентом Российского общества по неразрушающему контролю и технической диагностике, членом Координационного совета по вопросам транспортного машиностроения при департаменте транспортного и специального машиностроения Министерства промышленности и торговли РФ, членом национального аттестационного комитета России по неразрушающему контролю. Эдуард Степанович был избран почетным членом Болгарского и Израильского обществ неразрушающего контроля, действительным членом Международной академии неразрушающего контроля (Италия).

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Фотография - статья о Э.С. Горкунове в [Википедии](#).

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