Олег Александрович Похотелов

(13 октября 1946 г. – 12 ноября 2019 г.)

12 ноября 2019 г. на 74-м году жизни скончался доктор физико-математических наук, профессор, заведующий лабораторией геоэлектродинамики Института физики Земли им. О. Ю. Шмидта РАН Олег Александрович Похотелов.

О.А. Похотелов являлся выдающимся российским ученым и специалистом в области изучения атмосферы, ионосферы и магнитосферы Земли. К наиболее характерным чертам его творчества следует отнести интерес к сложным фундаментальным проблемам, имеющим значение не только для геофизики, но и для всего комплекса наук о Земле.

Олег Александрович родился 13 октября 1946 г. в селе Покров-Березовка Кондальского района Пензенской области. Его интерес к наукам о Земле возник еще в школьные годы, в период обучения в физико-математической школе-интернате им. академика М.А. Лаврентьева (Новосибирск, Академгородок), где читали лекции по физике и математике выдающиеся советские ученые академики. В 1965 г. после окончания этой школы с серебряной медалью О.А. Похотелов поступил на физический факультет Новосибирского государственного университета. Научную работу он начал еще в студенческие годы с исследования нелинейной эволюции тиринг-неустойчивости хвоста магнитосферы Земли. Первым наставником стал академик Р.З. Сагдеев, у которого Олег Александрович проходил дипломную практику. В то время в отделе, которым руководил Р.З. Сагдеев, работали очень сильные молодые ученые, ставшие впоследствии академиками (А.А. Галеев, В.Е. Захаров, Д.Д. Рютов, А.М. Фридман), и это значительно подогревало интерес к занятию научными исследованиями.

Первоначально научные занятия О.А. Похотелова в основном переплетались с проблемами физики плазмы и УТС, но в 1968 г. Р.З. Сагдеев неожиданно предложил ему резко изменить тематику исследований и заняться геофизикой, в частности - изучением неустойчивостей радиационных поясов Земли. Первые крупные научные результаты были получены О.А. Похотеловым еще в студенческие годы, когда ему удалось построить модель ударной волны, распространяющейся в плазме солнечного ветра, а также разработать нелинейную теорию тиринг неустойчивости в нейтральном слое хвоста магнитосферы Земли, которая играет ключевую роль в процессах формирования магнитных бурь.

После окончания университета (с отличием) в 1970 г. Олег Александрович поступил в аспирантуру Института физики Земли АН СССР, и с тех пор его научная жизнь неразрывно была связана с ИФЗ. В институте О.А Похотелов прошёл путь от младших научных должностей до заведующего Отделом электромагнитного поля Земли. С 1978 г. он успешно работал в должности заведующего лабораторией геоэлектродинамики ИФЗ РАН, которая является одной из сильнейших в институте.

О.А. Похотелов, В.А. Троицкая и В.А. Пилипенко на конференции по плазменной астрофизике (Иркутск)

В 1970 – 1980 г.г. О.А. Похотеловым были получены важнейшие результаты, существенно опередившие свое время. К ним относятся построение нелинейной теории геомагнитных пульсаций типа “жемчужин”, обнаружение сателлитной неустойчивости, построение дрейфовой теории геомагнитных пульсаций, теоретическое предсказание эффекта сверхмедленного распространения геомагнитных пульсаций вдоль земной поверхности, явившегося основой дирекционного анализа, нацеленного на поиск нефти и газа. В 1980 – 1990 гг. О.А. Похотелов внес фундаментальный вклад в теорию нелинейных вихревых структур в атмосфере и ионосфере Земли. На основе математического подобия дрейфовых волн в плазме и планетарных волн в атмосфере им были разработаны элегантные математические модели вихревых структур, сформулированы нелинейные геострофические уравнения бароклинной атмосферы, рассмотрены химические механизмы усиления когерентных структур в верхней атмосфере, рассмотрены механизмы нелинейного взаимодействия планетарных и инерционных волн в атмосфере и океане. Работы этого периода обобщены в его монографии, написанной совместно с В.И. Петвиашвили, “Уединенные волны в плазме и атмосфере”, изданной в России и за рубежом.

О.А. Похотелову принадлежат пионерские работы по обнаружению электромагнитных и ионосферных аномалий на спутнике над очагами готовящихся землетрясений. Он явился инициатором использования космических систем в целях глобального мониторинга сейсмической активности.

В 90-х годах О.А. Похотелов опубликовал серию работ, в которых предложил оригинальный механизм пондеромоторного перераспределения плазмы радиационных поясов Земли под действием геомагнитных пульсаций. Им разработана теория дисперсионного альвеновского резонатора, играющего фундаментальную роль в процессах передачи энергии от солнечного ветра к верхним слоям атмосферы, разработал теорию магнитных дыр в окружающем космическом пространстве. Он внес существенный вклад в быстро развивающуюся сейчас область - теорию вихревых структур в пылевой плазме. Им было показано, что присутствие в ионосфере заряженной пыли может являться триггером для образования сильно локализованных когерентных структур, приводящих к возникновению сильных электрических полей и аномальной диффузии ионосферной плазмы. Им была существенно усовершенствована нелинейная модель планетарных волн Чарни-Обухова на случай трехмерных возмущений, им впервые было получено точное трехмерное аналитическое решение модифицированного уравнения Чарни-Обухова. В последние годы им была построена оригинальная модель генерации и нелинейной эволюции пылевых дьяволов в атмосфере Земли и на Марсе.

О.А. Похотеловым являлся членом Ученого совета ИФЗ РАН, экспертом РФФИ, РНФ, Совета по грантам Президента РФ и Минобрнауки России, членом Американского Геофизического Союза, руководителем Семинара по геоэлектродинамике и волновым геомагнитным полям, постоянно действующем при ИФЗ РАН. Под его научным руководством защищено 8 кандидатских диссертаций, трое его учеников стали докторами наук.

О.А. Похотелов с коллегами: А.А. Галеевым, Р.З. Сагдеевым, Г.С. Жеребцовым и др.

Олег Александрович был приятным и приветливым человеком в общении со всеми, всегда готовым поддержать не только близких, но и абсолютно незнакомых ему людей. Он делал замечательные доклады на русском и прекрасном английском языках и очень заразительно смеялся над шутками. Множество людей пронесет через свою жизнь любовь и уважение к науке благодаря общению с Олегом Александровичем. Светлая память о замечательном друге и ученом останется в жизни всех, кому довелось общаться и работать с Олегом Александровичем Похотеловым.

Текст составлен по материалам памятной статьи на сайте ИФЗ РАН.

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